THE SUPPLEMENTAL APPROPRIATION BILL FOR 1953

HEARINGS

BEFORE

SUBCOMMITTEES OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

EIGHTY-SECOND CONGRESS

SECOND SESSION

PART 3

ATOMIC ENERGY COMMISSION

TENNESSEE VALLEY AUTHORITY

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THE SUPPLEMENTAL APPROPRIATION BILL FOR 1953

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MONDAY, JUNE 16, 1952.

ATOMIC ENERGY COMMISSION

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JAMES A. MILLER, CHIEF, BUDGET OPERATIONS BRANCH

Mr. GORE. The committee will please come to order.

The committee has for its consideration this morning a communication of the President of the United States transmitting Document No. 476, for proposed supplemental appropriations for the fiscal year 1953, in the amount of $3,341,000,000, for the Atomic Energy Commission and the Tennessee Valley Authority.

This document will be inserted in the record at this point.

(The document is as follows:)

THE WHITE HOUSE,
Washington, May 28, 1952.

The SPEAKER OF THE HOUSE OF REPRESENTATIVES.

SIR: I have the honor to transmit herewith for the consideration of the Congress proposed supplemental appropriations for the fiscal year 1953, in the amount of $3,341,000,000, for the Atomic Energy Commission and the Tennessee Valley Authority.

These funds are needed principally to begin a major further expansion of the production facilities of the Atomic Energy Commission. This expansion has been under consideration for some time. It is made necessary by the fact that the Soviet Union has shown no disposition to cooperate in an international program for control and regulation of armaments and, in the absence of effective international control of atomic energy, the national security and the security of the free world demand that we maintain and increase our leadership in this field. The United States stands ready to move ahead on the United Nations plan or any other plan that is no less effective in controlling atomic energy and thereby insuring the prohibition of atomic weapons.

The expansion plan is based upon studies and recommendations made by a special committee of the National Security Council which I designated for this purpose and which received advice from the Joint Chiefs of Staff. The new facilities, which will provide greater capacity for the production of fissionable materials and for the fabrication of such materials into atomic weapons, will strengthen our atomic energy program over and above the expanded program initiated during the course of the past 2 years. I recommend that we undertake this new expansion promptly.

The total cost of the new facilities required, including those to be constructed by the Tennessee Valley Authority for power generation and transmission, is estimated at approximately 4.2 billion dollars for construction over a period of about 5 years, of which a major portion is needed at this time. The funds required to complete the construction program and to operate the resulting plants will be requested in future budgets. Expenditures by the Atomic Energy Commission and the Tennessee Valley Authority in fiscal year 1953 for this expansion program are estimated at about 650 million dollars.

The details of these proposed appropriations are set forth in the attached letter from the Director of the Bureau of the Budget, with whose comments and observations thereon I concur.

Respectfully yours,

HARRY S. TRUMAN.

EXECUTIVE OFFICE OF THE PRESIDENT,
BUREAU OF THE BUDGET,
Washington 25, D. C., May 28, 1952.

The PRESIDENT,
The White House.

SIR: I have the honor to submit herewith for your consideration proposed supplemental appropriations for the fiscal year 1953, in the amount of $3,341,000,000, for the Atomic Energy Commission and the Tennessee Valley Authority. These proposed supplemental appropriations are required primarily to begin a substantial expansion of the atomic energy program. The total cost for construction of the additional production facilities required is estimated at approximately 4.2 billion dollars, including the cost of power facilities to be constructed by the Tennessee Valley Authority. Expenditures by the Atomic Energy Commission and the Tennessee Valley Authority for the expansion program are estimated at about 650 million dollars in fiscal year 1953. The proposed supplemental appropriations are as follows:

"INDEPENDENT OFFICES

"ATOMIC ENERGY COMMISSION

"SALARIES AND EXPENSES

"For an additional amount, fiscal year 1953, for "Salaries and expenses", *including the purchase (not to exceed an additional two hundred) and hire of passenger motor vehicles, $3,191,000,000, of which $2,924,000,000 shall be immediately available: Provided, That appropriations granted to the Commission for the fiscal year 1953 shall be available in amounts not to exceed $30,755,526 for expenses of program*

direction and administration personnel, and not to exceed $3,657,647 for expenses of travel: Provided further, That appropriations available to the Commission for construction shall be available for the costs of cancellation of long-term contracts for electric service and shall remain available until expended."

Of this proposed supplemental appropriation, $2,924,000,000 is required in order to initiate immediately the construction of the major elements of the expansion program. The remaining funds necessary to complete the expansion program will be included in the budgets for 1954 and subsequent years.

The remainder of the supplemental appropriation, amounting to $267,000,000, is needed to meet the increased operating costs in fiscal year 1953 which will be required to carry forward the program for the expansion of production capacity, and to meet other increases in financial requirements in fiscal year 1953 over and above those which were anticipated at the time the 1953 budget was submitted last January. These latter requirements are not related to the expansion program. They arise primarily from a rescheduling of production and research programs, from recent technical developments, which point to the immediate need for additional facilities to maintain a high rate of progress in the atomic energy program, and from cost overruns on a small number of other construction projects.

The amounts requested in this supplemental estimate are over and above those requested in the 1953 budget, and are based upon the expectation that the Commission's 1953 budget, now pending in the Congress, will be approved in full.

TENNESSEE VALLEY AUTHORITY

"For an additional amount for 'Tennessee Valley Authority', *including the purchase of not to exceed an additional seventy passenger motor vehicles, $150,000,000,* to remain available until expended."

This proposed supplemental appropriation is necessary to provide funds for commencing construction of steam electrical generating plants, transmission lines, and other facilities necessary to furnish power for certain of the proposed expanded facilities of the Atomic Energy Commission.

I recommend that the foregoing proposed supplemental appropriations be transmitted to the Congress.

Respectfully yours,

F. J. LAWTON,
Director of the Bureau of the Budget.

Mr. GORE. The committee is pleased to have before it this morning the Chairman of the Atomic Energy Commission, Gordon Dean, and Commissioners Henry D. Smyth, Thomas E. Murray, T. Keith Glennan, and Eugene M. Zuckert. We are also pleased to have with us M. W. Boyer, the General Manager, and Walter J. Williams, the Deputy General Manager; as well as Everett L. Holis, the General Counsel, and Harold L. Price the Deputy General Counsel.

We are also pleased to have the other gentlemen present; Richard W. Cook, Director, Division of Production; Samuel R. Sapirie, manager, Oak Ridge Operations Office; Jesse C. Johnson, Director, Division of Raw Materials; Brig. Gen. K. E. Fields, Director, Division of Military Application; Lawrence R. Hafstad, Director, Division of Reactor Development; Thomas H. Johnson, Director, Division of Research; Dr. Shields Warren, Director, Division of Biology and Medicine; E. J. Bloch, Director, Division of Construction and Supply; Fletcher C. Waller, Director, Division of Organization and Personnel; F. J. McCarthy, Jr., the Acting Controller; and James A. Miller, Chief, Budget Operations Branch.

Mr. Dean, the committee has before it your estimates for a $3 billion expansion of the Atomic Energy Commission. There are two main questions involved. The first question is the justification for the expansion. The second question is the justification for this particular amount of expansion.

The committee would be pleased to hear your justifications for an expansion of the atomic energy program, and particularly for so large an expansion as is proposed.

Mr. DEAN. With your permission, Mr. Chairman, I should like to insert in the record an unclassified statement reviewing the supplemental estimates. I should then like to go off the record and make a detailed presentation, talking from a classified statement. The unclassified statement is virtually the same as the classified statement, with the exception that we have deleted the restricted data items, and there are some classified charts to which I should like to refer in this classified presentation.

Mr. GORE. Your off-the-record presentation will follow the line of your statement which is going to be inserted in the record?

Mr. DEAN. Exactly.

Mr. GORE. That is permissible. You may proceed with your statement.

GENERAL STATEMENT

Mr. DEAN. The members of the Atomic Energy Commission are appearing before you today in support of the President's request for $3.2 billion of new obligational authority in 1953. All but $267 million of this amount is needed to build new and additional facilities throughout the entire atomic energy production program. Having a total estimated cost of $3.9 billion, the proposed expansion program would greatly increase the rate of raw material procurement, fissionable material production, and weapon stockpiling.

We are well aware of the fact that this is no ordinary budget request. We know that it involves a very large sum of money—the largest single sum ever requested for the national atomic energy program. We know, too, that it involves a very large construction effort that will inevitably make heavy demands upon many critical skills and materials that are in short supply.

And we know that it comes at a time when other defense expenditures are extremely high.

These are facts that have been very much in our minds during the months of study and analysis that have preceded the presentation of this request. And they have been very much in our minds during the reevaluation of our position that we have made during the past several weeks.

And yet we have concluded that this request must be made. As a matter of fact, we strongly believe—on the basis of all the information we have had—that we would be grossly derelict in the discharge of our responsibility if we failed to make it, and if we failed to make it at this time.

I say this for several reasons:

First, through studies by the Department of Defense we have been assured that a real military requirement exists for the weapons to be produced by this expansion and that they are vital to our national security in the event of all-out war.

Second, through discussions in the National Security Council, we have assured ourselves that this expansion is in keeping with our national interest and our national strategic planning.

Third, through a number of recent developments, we have assured ourselves of a uranium ore supply sufficient to support an expansion of this magnitude.

Fourth, through studies made by our own people and by the Office of Defense Mobilization, we have been assured that an expansion of

this magnitude can be undertaken and brought through to completion without adversely affecting the national economy.

In other words, we have the means for carrying out this expansion program, and the Nation has a real requirement for the weapons it will produce. It is with this firm knowledge that we make this request for funds.

The setting in which this request is made stems from recent revolutionary developments in the field of atomic weapons technology. Through these developments, the whole concept of how atomic weapons can be utilized in warfare has been radically revised.

No longer are these weapons looked upon only as devices to be used in an "Hiroshima-type" way against cities and industrial areas. It is now possible to have a complete "family" of atomic weapons, for use not only by strategic bombers, but by ground-support aircraft, armies and navies.

The Department of Defense is very much aware of this change in concept, and atomic weapons are being incorporated into the operational plans of all three of the armed services.

This, quite naturally, has greatly increased the demand for atomic weapons—to an entirely different magnitude than it was a few years ago.

It is the purpose of this expansion to meet this demand, and to meet it as soon as possible.

We could, of course, meet this demand eventually with the facilities we now have on hand or are building. But we would meet it much later. This new expansion is designed to reach the minimum military stockpile requirement at least 4, and possibly 5 years earlier than would otherwise be the case—4 years in which I think we can be sure the Soviet Union will not be idle.

We are aware of the great price that will have to be paid to accomplish these objectives. The entire expenditures on plant by the Manhattan district, for example, were less than the estimated total cost of the proposed expansion. The Commission's existing and authorized plant now totals about $5.5 billion, to which would be added the proposed facilities amounting to $3.9 billion, thus increasing plant and equipment assets to $9.4 billion.

Total operating costs would also rise. In 1953 they are estimated at $887 million. By 1961 presently authorized facilities alone are expected to require operating costs of $1.4 billion, while the proposed expansion would require $538 million more, or a combined total of nearly $2 billion annually.

The amounts involved in this request—now and in the years to come—are tremendous sums indeed. But the real question is whether we can, in the present stage of the mobilization drive and in the face of Soviet Russia's continued intransigeance, afford anything less.

In considering this request, I think it is important to remember that, while obligations for the expansion program total $2.9 billion in 1953, only 600 millions of these dollars will actually be paid out in the fiscal year 1953. The impact of the request on the Federal budget for 1953 is therefore considerably less than it might at first appear to be.

PREVIOUS EXPANSION PROGRAMS

Recurring expansions of plant capacity have been an outstanding feature of the atomic-energy program, and it is against these that the present proposal also should be viewed.

It may be recalled that the first major expansion consisted of constructing additional capacity at both Hanford and Oak Ridge during the period 1949–50. All this plant is now contributing to greater production of fissionable materials and weapons. The second major expansion, authorized in 1950, resulted from the President's directive early that year to determine the feasibility of thermonuclear weapons. The major item in the second program is the Savannah River plant. Later the same year, in response to extended joint studies of weapons supply and requirements, a third major expansion of fissionable material production was authorized, involving construction of gaseous diffusion facilities at Paducah and additional capacity at other sites. Because of these additional facilities, higher plant operating levels and various process improvements, the annual production rate represented by currently authorized plant has increased sharply since 1947.

Looking at this history of successive expansions, it is evident, first, that military requirements have mounted greatly since 1947 to warrant such large additions to plant. Second, the President and the Congress have recognized the growing need for additional atomic weapons in the light of international relations and have authorized the substantial requests for funds recurrently needed. Finally, each expansion has been successfully undertaken. We know this by measuring the number of weapons added to the stockpile and by having unfailingly met stated military requirements at particular dates. We believe the expansion program currently under way will also be achieved and that the new stockpile goals will be met.

MILITARY REQUIREMENTS

During this period of international tension, the dictates of military strategy have been the key factor back of successive increases in plant capacity. In my judgment the weapon requirements stated by the Joint Chiefs of Staff are reasonable and I am convinced of the necessity for trying to achieve them. We naturally feel that the weapons goal underlying the expansion program can best be set forth by the Department of Defense and we understand that representatives of the Department will appear before you later.

In anticipation of their review of the military need for the expansion, I would like to state briefly the role the Commission plays in evaluating the relation of weapon requirements and additional production facilities. We recognize that military strategy and tactics are among the fundamental bases of requirements and that these matters are therefore primarily the province of the Department of Defense. There are, however, two important functions the Commission must perform.

SECURING NSC CLEARANCE

First, and we feel this strongly, the task of establishing atomic weapon goals and planning the vast facilities necessary to meet them involves grave national policies and long-term commitments that

require the most thorough consideration at the highest levels in the executive branch before submission to the Congress. The proposed expansion program, as you are aware, has been developed, not as a matter between the Department of Defense and the Commission only, but rather as an issue requiring the careful deliberation and action of the National Security Council and the President.

JUDGING FEASIBILITY

Our second function, one no other agency can perform, is to gage the technical feasibility of accomplishing weapon goals. We can measure with some degree of confidence what is required in terms of raw-materials supply, various types of plant capacity, and scientific and engineering talent. The impact of critical material needs, manpower requirements, and the need for special equipment are also assessed by other agencies, particularly the Office of Defense Mobilization. We have been advised that in terms of critical materials, equipment, and manpower the proposed program is feasible, although specific shortages may occur as construction proceeds.

The National Security Council, then, has been the means of providing coordination and review, thoroughly and promptly by tthe executive branch and by the President.

EXPANSION PROGRAM ESTIMATES

Let me turn now to the estimates. The over-all estimated cost of $3.9 billion for plant and equipment has been arrived at with care. During the course of the joint studies a variety of cases—I believe more than 25—were selected for examination, each of which involved somewhat different conditions and assumptions concerning the supply of raw materials and the projected increase in fissionable material production. As the study took shape and the number of cases was sharply reduced, it appeared that the maximum expansion studied would require roughtly $10 billion of plant. As it has finally developed, the case recommended by the National Security Council and approved by the President required a substantially smaller sum—$3.9 billion. By carefully considering various cost factors, it has been possible during the past few months to reduce the total cost of the expansion substantially below what might have been required.

As to the firmness of the dollar estimates, we grant that they are not engineering estimates based on designs in hand. To secure such estimates would take many months of costly work and would greatly delay the program. We do believe the estimates are reasonable and certainly in the right magnitude. They have been examined carefully and would be modified further as design and engineering proceeds. After allowing for certain novel features, the design of, and estimates for, the major facilities represent projections of somewhat similar plants that have been built before.

PRESENTATION OF CHARTS

Perhaps the simplest and most effective way for me to explain the expansion program is to talk from a series of classified charts, designed to answer the pertinent questions about scope, composition, and timing.

INCREASED EFFICIENCY

In viewing these charts I hope you will keep in mind the great contributions of research and development that lie back of the rising trend of output. The larger output of fissionable materials and weapons in recent years is not just the result of having built more capacity and procured larger tonnages of raw materials. In large measure it also represents major improvements in plant efficiency and materials utilization. Equally significant, in terms of weapon strength, is the truly great advance that has been made in the design of weapons so as to secure greater energy yield from a given amount of fissionable material. Average unit costs of fissionable material production have been decreased and the energy equivalent of stockpile weapons has increased as a result. Such improvements in plant operation and weapon design are the tangible results of both percepceptive basic research and active process development. We need more, not less, of each.

POWER SUPPLY

The amount of electric power required to operate the additional capacity, at existing and new sites, is extremely large. Securing this power raises important issues of public policy. I should like, therefore, to state what the Commission's course of action has been with respect to securing additional electric power.

The cost of power is the major part of the total operating cost of producing U–235; it is also significant, though much less so, in the production of plutonium. The most important factor, therefore, in selecting a site for a gaseous diffusion plant is to secure economy in power supply. In securing power for gaseous diffusion plants at new and existing sites we look to both the privately owned and publicly owned utilities for the most economical source of supply. We are following no doctrinaire policy, favoring either public or private power. Our practice is to solicit proposals from all possible sources and to use public or private utilities, or both in combination, as is indicated by comparative costs, by reliability of service and supply, and by ability to furnish interim power required during the building period.

Let me review briefly how the gaseous diffusion plants are being supplies and how we expect to secure additional power. At Oak Ridge, about one-fifth of the present power requirement is generated on the site in Government-owned steam plants operated by the contractor; the balance is procured entirely from TVA. Any additional demand there would also be served by TVA, although private utilities were asked to submit proposals for all or any part of additional requirements at Oak Ridge. None was able to submit a proposal because the distance to Oak Ridge is so great that it is not economical to build generating stations near their system's load centers and transmit the additional power required to Oak Ridge. Interim power requirements and possible absorption of output if requirements are reduced or terminated are other factors that would make their rates higher than those resulting from expansion of adjacent TVA facilities.

At Paducah, we are securing power on a 50–50 basis from TVA and a group of private utilities. Any additional requirement at Paducah

would be met 75 percent by TVA and the balance by private utilities. At the new site, which we refer to as site III, we would expect to secure all the power requirement from private utilities and we are now reviewing their proposal. Completion of the gaseous diffusion expansion would find 58 percent of the power demand of these plants being supplied by Government-owned facilities and 42 percent by private utilities.

In the plant-and-equipment portion of the estimate we are requesting $227 million for additional or new requirements of power at Oak Ridge, Paducah, and at site III. The estimates for Oak Ridge and Paducah power are for possible cancellation costs to cover maintenance and amortization of plant if our requirements were terminated, or drastically reduced. Obligations are included for site III power plants sufficient to permit construction of generating facilities, if the negotiations with the private utilities are not successfully concluded. We believe it is in the public interest that the Commission should have an alternative course of action available to it while carrying on these negotiations. If the negotiations are successful, as we hope they will be, the obligational authority will still be required to cover possible cancellation costs, as under the contracts with TVA and Electric Energy, Inc.

CONSTRUCTION SCHEDULES

One of the charts shows the rather considerable period over which construction of the major facilities would occur. The schedules shown here are based on an assumed authorization date of July 1, 1952. In order to expedite work in the event of early approval by the Congress, the Commission has authorized certain preliminary work in connection with selection of a new site. Chiefly because of the complex power problem, preliminary surveys of potential sites were necessary to avoid subsequent delay. These surveys have suggested certain locations in the Ohio River Valley, but none has been selected yet and no commitments have been made.

COST-PLUS-FIXED-FEE CONTRACTS

Mr. GORE. Mr. Dean, the Commission has now constructed gaseous diffusion plants at Oak Ridge. It is now in the process of construction of gaseous diffusion plants at Paducah. In your proposed expansion program, additional gaseous diffusion plant capacity is proposed to be constructed at Oak Ridge and Paducah.

It occurs to the committee that with all of the experience in the construction of buildings which you have had, for the one thing, and the installation of equipment for the other, as to the gaseous diffusion plants, all of which seem to be more or less standardized now, that it would be possible to get away from the cost-plus-fixed-fee contracts in your construction and installation.

Even if honest—as I presume this kind of cost-plus contract would be—it is nevertheless an open invitation to extravagance. The committee would like very much to see you move away from the cost-plus contracts not only in the construction field but insofar as possible in the installation of machinery and also in as many other phases of the program as possible.

Mr. DEAN. We are very anxious to move away from the cost-plus-fixed-fee type of contract and into the lump-sum and unit-cost contracts wherever possible.

We are very mindful of the admonitions of this committee over a period of years that is is more desirable to do it that way. The only thing which drives us into a cost-plus-fixed-fee contract, rather than the lump-sum contract, is the element of time.

In this connection may I point out to you, for example, that to take the piles—they are a much better argument for the cost-plus-fixed-fee contract than the gaseous diffusion, to which I will return in a moment—at the Savannah River project today they are approximately 60 percent designed. Yet that has been building for over a year.

Now, if we were to wait to the point where we could issue bids to contractors to build something like the Savannah River site, we would still probably have to wait at least another 12 months before we could let it out to build.

Mr. YATES. Who would build it for you? Can the contractors who are now building at Savannah and other places leave those projects and build these new plants? Could they do it in addition to what they are doing?

Mr. DEAN. That would be a question of getting a contractor who would undertake such a job, which is a separate question and a very difficult one. I am just illustrating that if you waited for the full design before you would let this out for bid you would proqably lose more than a year or a year and a half for Savannah River.

Mr. THOMAS. Mr. Dean, I question that statement. Here is X. He is a contractor. He does not have plans and specifications. What in the world is he working on all of this time?

Mr. DEAN. This design is changing daily, Mr. Chairman.

Mr. THOMAS. He is losing time daily then.

Mr. DEAN. He is not losing time daily.

Mr. THOMAS. What is he doing?

Mr. DEAN. He is trying to get the best design possible.

Mr. THOMAS. He does something today, and tomorrow you change the plan and he undoes it. Where have you saved a minute?

Mr. DEAN. You have to build them.

Mr. THOMAS. You are no different from anybody else. Advance planning is the keynote to success in any undertaking. You just cannot get around it. If you do not know what your plans are and if they are not reasonably firm, how do you expect the contractor to know?

Your contractor may go out here and work a week or 10 days on a certain phase of this thing, and then you change it. He has lost that. Then you have to turn around and tear it up and do it over.

If you were to give 6 months of concentrated effort to planning and studying and drawing plans, that contractor is going to be able to pick up that 6 months further down the line, because he will not have to change this, that, and the other.

Mr. BOYER. Mr. Chairman, may I comment on that?

We start the design, and as rapidly as any portion of the plant is completed the materials are listed and the plant is started. The minute they can start with certain portions of the construction work, that moves along rapidly.

This is taking exception to what you say: There is a saving in time. It has been recognized in private industry as well, because private industry in the type of process equipment, in the chemical and petroleum business, with which I am more familiar, finds that it can gain time by going to the cost-plus-fixed-fee contracts.

Mr. THOMAS. Why?

Mr. BOYER. Because of the fact that you do not have to have advanced engineering designs prior to initiating construction or for the purpose of making an accurate estimate.

DETAILED PLANS AND SPECIFICATIONS NECESSARY FOR COMPETITIVE BIDDING

Mr. THOMAS. Are you saying that private industry, when it goes into the construction of a chemical plant, does not have its plans reasonably firm?

Mr. BOYER. Not to the extent that you can take off the accurate tons of steel or a precise estimate of the man-hours which a construction contractor has to have, unless he is going to take a great risk. Now, he will take a great risk, but his contingency in his bid is such that that risk is materially reduced. So if he is going to give you an accurate bid——

Mr. THOMAS. What you are saying is that he is going to put in a little scare price in his bid. Where is that going to save time? Suppose he puts a little scare price in there? What about your time element? Mr. Dean stated it was going to cost you time.

Mr. BOYER. That is my point, too. It would be simpler for us to handle all of our business on a lump-sum basis, by competitive bid. We could come up here, and there would never be any argument on this subject of the cost-plus-fixed-fee contractors. I think we could take our time in doing these things, and make our job somewhat easier.

On the other hand, we have made estimates for this new site and for the expansion at Paducah and Oak Ridge.

Mr. THOMAS. Judge, if you know what you want and if you have your plans ready, you know you are going to get it quicker. What you are saying adds up to this: We do not know what we want and we are going to sort of plan as we go along. If that is true, your position is certainly sound.

Mr. BOYER. Let me state this: We know what we want. We do not have the engineering designs completed for those plans.

Now, you can know what you want processwise, and we can make projections as to what we think the order of magnitude costs are. To actually design the steel work and to show where the bolts and rivets have to go together and where the pipe has to be supported, even though they are essentially duplicates of the other plants, calls for engineering designs. If you do not have engineering designs completed or far enough along, the contractor cannot make very good estimates, ones on which he is willing to make a competitive bid.

Mr. THOMAS. That is true. That gets back to the Atomic Energy Commission not having plans and specifications ready. You do not know what you want.

Mr. GORE. Well, that may be true with respect to the building of a new pile, which is, to a large degree, different from the piles which you already have.

Mr. DEAN. It is more true in that case.

Mr. GORE. Let us come back to the construction of a building. You have K–25, K–27, K–29, and K–31. You have somewhat similar gaseous diffusion plants under construction at this time at Paducah.

Let us break it down first into the construction of the building.

Mr. GLENNAN. May I interrupt and suggest that we have the opportunity to take some numbers of plants off the record later on?

Mr. GORE. Surely. It is common knowledge, on the designation of these buildings.

Mr. DEAN. This is off the record.

(Discussion off the record.)

Mr. GORE. That means your building is so much longer and so much wider?

Mr. COOK. Yes.

Mr. GORE. You have that much additional floor space?

Mr. COOK. Yes, sir.

Mr. GORE. Your walls are perpendicular, your siding is the same, your roof is the same. I do not know why you cannot come up with some estimates. If you do not have enough engineers and architects in the Atomic Energy Commission to come up with estimates on how much it costs to build a building similar to the ones you have already built, then I think we had better do a little employment of some new personnel and dismiss some we have.

Mr. COOK. We have estimates, sir, and I think they are very good estimates.

Mr. GORE. Why can you not take competitive bids on that basis?

Mr. COOK. We can take competitive bids on that basis if one is willing to lose the time which is involved in completing the plans and specifications and issuing invitations to bid, allowing the contractor an opportunity to have a sufficient time to make an estimate on which to make a lump-sum bid.

Mr. THOMAS. Who is going to make these plans and specifications? Eventually you will have to have them, will you not?

Mr. COOK. Yes, sir.

Mr. THOMAS. Do they not require them?

Mr. COOK. That is right. A good example of the time which is involved is this: On January 2, 1951, the Paducah project was authorized. We had started our engineering 3 months prior to that. At the present time the engineering of the Paducah job is 83 percent completed. We are following the construction along behind the engineering, with the foundations, working right up to the completed plant.

Now, you will not have the completed engineering, the completed plans and specifications for the Paducah job until sometime around the first of next year. That means from 3 months prior to January 1, 1951, until the first of next year is required to do the detailed design, the plans and specifications necessary to complete that job.

SAVINGS IN TIME RESULTING FROM COST-PLUS CONTRACTS

Now, if you are going into a new job like this, it is a much bigger job, and more time would be required if you wanted to have complete plans and specifications in order to take a lump-sum bid for the total job.

Mr. THOMAS. Wait a minute right there. Du Pont has 2,500 engineers working on the Savannah plant; have they not?

Mr. BOYER. Approximately.

Mr. THOMAS. All you are saying is that you would rather have 2,500 engineers working on plans and specifications as you go along, rather than to have the same number before the contract is let.

Mr. COOK. No, sir. All we are saying is that if you want to wait until you have the complete plans and specifications on which you can receive lump-sum bids you are going to suffer the delay it takes to complete those plans and specifications so that you can receive lump-sum bids.

Mr. GORE. Let us not get away from the basic fact which I wanted you to start with. Let us get down to the building of a brick and mortar, metal siding, concrete-floor building with a roof. How much difference is there to be between the K–31 and the new plant and why can you not get cost estimates in a matter of a very few weeks on the floor space of that building?

Mr. COOK. We have those, sir.

Mr. GORE. Why can the Commission not accept competitive bids for the construction of the building?

Mr. COOK. A contractor, before he will submit a lump-sum bid, has to have complete plans and specifications.

Mr. GORE. You have complete plans and specifications for the K–31.

Mr. COOK. No, sir; we do not.

Mr. GORE. Why do you not have them?

Mr. COOK. Oh, for the K–31? Yes, sir. But the proposed new plant is of different design than K–31.

Mr. GORE. I am not talking about the pipeline and the installation of machinery. I am talking about the sides, the roof, and the floor.

(Discussion off the record.)

Mr. COOK. Although we do have complete plans on the K–31 building, which has been completed, suitable for cost-plus-a-fixed-fee type construction, we do not have complete plans on the new facilities we propose to build under this program.

Mr. BOYER. Let me help, if I can, Mr. Gore.

Mr. GORE. Yes.

Mr. BOYER. This involves a different supporting steel in the building, and different lay-outs of the steel work, for attaching the pipe and the machinery, and there are different arrangements of foundations.

In other words, it sounds like it is essentially a duplicate. It is essentially a duplicate in what it will do, but there is a great difference there, so that you have to redesign the structure to support the difference in piping and the difference in machinery.

I hope that you gentlemen appreciate that we are not defending the cost-plus-fixed-fee contracts because that is the way we like to do business. I would like for the record to be very clear that we do that in the interest of saving time.

Mr. GORE. Let us talk about time. When was it that the President announced this program?

Mr. BOYER. In January, I believe, of 1952.

Mr. GORE. Is this not June?

Mr. BOYER. That is right.

Mr. GORE. How is it that we have spent 5 months waiting for you to get this justification before the committee? This is 5 months after the President announced it, and some several months after the Commission had determined that it would recommend it. The estimates reach us 5 months later, and yet we are told that for the sake of time we cannot even get a competitive bid on the building of a building. If you are speaking of time, that is an example of waste of time, it appears to me.

Mr. BOYER. I do not think that is correct, Mr. Gore. If we had come in in January we would have asked for $5.9 billion. We are now asking for $3.2 billion.

Mr. GORE. We might wait three more months, and you might want a little less.

Mr. BOYER. If we can do it for a little less we will do it for a little less.

Mr. GORE. It might be advisable, for the sake of efficient expenditure of the taxpayers' money and to effectuate some saving of the taxpayers' money to sacrifice a little time, particularly if in 5 months it has allowed us to cut it in half, before it even reaches Congress.

Mr. BOYER. There is some point, however, at which you have to decide whether you can afford to take longer time to study the processes further.

Mr. GORE. Yes, and there is some point where we have to stop handing out fees on a cost-plus basis. I see no necessity of making a new crop of millionaires every time the country's security is threatened.

EXAMPLES OF WORK NOW PERFORMED ON LUMP-SUM CONTRACTS

Mr. DEAN. Mr. Gore is concerned about the extent to which the K operation at Oak Ridge and the K-type operations, for example, at the new site, can be done under the lump-sum contracts. I think we should point out that it has been the practice and it will be the practice to do much of this work under lump-sum contracts.

I should like to have Mr. Williams point out some of the things that will be lump-sum and not cost-plus-fixed-fee work. That will include the sidings, as I understand it. Is that right?

Mr. WILLIAMS. The sidings and the roofing. At Paducah all the big bidding, all the structural steel, is at unit prices. At Savannah River all the concrete is unit pricing. All the grading was unit pricing. The railroads are at unit prices. The pipe covering is at unit prices. We do that wherever we can. The roof deck is a unit price. We pick out the items as we go along.

Mr. GORE. What about the building? Let us not get away from that. What about these new gaseous diffusion plants? You have had 5 months since the President gave his approval to the program. You have had 5 months. All we have heard is that there is a slight difference in the building and a difference in the supporting steel.

Now, in 5 months, why could not your engineers and architects come up with the proper modification, sufficiently so that you could accept competitive bids for the construction of a building? I am talking of nothing particularly scientific and technical. I am talking of the construction of a building which is more or less of the same type.

DIFFERENCES IN BUILDING DESIGN WHICH MAKES COMPETITIVE BIDDING DIFFICULT

Mr. WILLIAMS. Well, this building is far from being like a warehouse. You have to take in all the considerations of the weight and the loading, and where you are going to hang your pipe. There are considerations such as the size of the beams to support it, and so on. It is more complicated than you make it, Mr. Gore.

Mr. GORE. Well, I have been in these buildings. The bulk of your weight is carried by your floor and your foundation.

Mr. WILLIAMS. The bulk of your weight is carried on the second floor, and it requires a structural steel design to overcome the vibration, and so on. If those designs are 100 percent completed, there would be no question but that you could put them out.

However, a contractor, in order to bid and make a competent bid, and not to either become rich or go broke, one or the other—it would be a miracle if he came out even—would have to put in a large contingency, depending upon the completeness of the designs and specifications.

Mr. GORE. Of course, that would be true if you did not have any designs to give him on which to build.

Mr. WILLIAMS. Well, you have to have complete designs.

Mr. GORE What has the Commission been doing during this 5 months before you have come up here, when you do not have the design for a building?

Mr. WILLIAMS. We have been working hard.

Mr. GORE. This building is, in many respects, a duplicate of the four you have already built and the two which are now under construction.

Mr. WILLIAMS. Mr. Gore, you have the wrong impression of this. K–25 is completely different from K–27. It is the same process, but it is completely different in detail. It is a completely different sized motor and pipe and so on.

Mr. GORE. I am not talking about the motor at all. I am talking about the building.

Mr. WILLIAMS. When you change the size of the motor and the piping and so on, your structural members in the building change with it. The foundation requirements are different. If you have a load of, let us say, 200 pounds per square foot, it will require a certain designed foundation.

Mr. GORE. Is that not pretty well known?

Mr. WILLIAMS. It is not completely known.

Mr. GORE. Cannot the engineers pretty well tell you the amount of pressure and vibration from the type of load which you are talking about? You have had 5 months in which to make that design, and yet you tell us you have nothing prepared in the way of a design, and that we have to start from scratch and let a man start construction.

According to Mr. Dean, the plans change from day to day.

Mr. WILLIAMS. Well, the details change from day to day, yes. For every change that you get when you have a lump-sum job you pay quite a change in your cost.

Mr. YATES. May I ask a question?

Your practice is to give the prime contractor a cost-plus-fixed-fee contract. Is it not his practice, also, to give his subcontractor, who

is going to develop these plans, a cost-plus-fixed-fee contract as well; and is it not also likely that down on the next lower level you will get a cost-plus-fixed-fee contract involved in this as well; becuase, according to the theories represented here you are pioneering a new field? You do not know what the pipes are or what the designs are, so you have four or five different levels of cost-plus-fixed-fee contracts before you finally get down actually to a fixed-price contract.

Mr. WILLIAMS. It is not quite that bad. It is considerably better than that.

Mr. YATES. How do you do it, then?

Mr. WILLIAMS. Here is the way you do it: You pick a prime contractor to have general charge and responsibility for the whole job.

Mr. YATES. And you pay him on a cost-plus basis.

Mr. WILLIAMS. You pay him a fixed fee. It is a fee based on the estimated cost of the job when he starts.

Mr. GORE. It is based on a rule-of-thumb percentage. We claim to have outlawed the cost-plus percentage contracts, but actually the fixed fee is arrived at by the percentage factor.

Mr. WILLIAMS. It is arrived at by a percentage of an estimated cost.

Mr. GORE. Of course. So we have not outlawed at all the cost-plus percentage fee.

Mr. BOYER. Mr. Gore, so far as the Commission is concerned, we do not have any contracts where the fee varies with the cost, if that is what you mean.

Mr. GORE. I understand what you mean, but your fee is arrived at by a percentage factor of estimated cost, so we are splitting hairs.

Mr. BOYER. What we have is a maximum-fee curve which is expressed in terms of dollars for a given dollar. That will give you a percentage.

Mr. GORE. Surely.

Mr. BOYER. You cannot avoid getting a percentage and coming out.

Mr. GORE. Surely.

Mr. BOYER. But it is not a variable percentage. It is a fixed fee, and we can express it in terms of dollars, and we do.

Mr. GORE. Which is arrived at by your percentage factor.

Mr. BOYER. By a curve showing the relationship between the fee in dollars and the estimated cost in dollars.

Mr. GORE. I understand.

Mr. SMYTH. Mr. Gore, the point is that the extravagance or the increased expenditure on the part of the contractor, or delay, will not increase the fee at all.

Mr. GORE. I understand that.

Mr. SMYTH. That is the point.

Mr. GORE. But there is no incentive on his part, either, as there would be if it were coming out of his pocket, to save on the actual construction cost.

Mr. BOYER. There is an incentive, Mr. Gore, on the part of the contractors to save money on the cost-plus-fixed-fee contracts. They are in competition. They must develop a reputation.

Mr. YATES. Who is in competition?

Mr. BOYER. The construction contractors are in competition.

Mr. GORE. With whom?

Mr. BOYER. With each other.
Mr. THOMAS. On this particular job?
Mr. YATES. Not on this job.
Mr. BOYER. Not on this particular job.
Mr. GORE. That is the point, Mr. Boyer. You are saying that it is necessary for a contractor to establish a good reputation.
Mr. BOYER. That is right; and to be a low-cost producer, a low-cost contractor.
Mr. GORE. That is a pretty indefinite incentive.
Mr. YATES. How do we know that in this field. Do we know what competition exists?
Mr. BOYER. Well, we have experience as to what it costs to build these buildings and these plants, so far as that is concerned. We are in a position to judge.

ESTIMATED TIME DELAY TO ANTICIPATE IF CONTRACTS ARE AWARDED ON COMPETITIVE BID

Mr. THOMAS. Why not let them on a competitive bid, then?
Mr. BOYER. If it were not for the time, Mr. Thomas, we would be happy to.
Mr. GORE. How much time is involved? How long would it require for the Commission? You have had 5 months. How much longer would it require for the Commission to make the structural steel changes, the slight differences in the building to which reference has been made, and to come up with a fixed estimate and design of a gaseous diffusion plant building?
Mr. COOK. For site 3 it would take a minimum of approximately 30 months or a little more.
Mr. YATES. Which is site 3?
Mr. COOK. That is this one here [indicating].
Mr. GORE. Let us begin with Oak Ridge. You are adding another plant to the pipeline. Is that going to take 30 months?
Mr. COOK. No, sir. For Oak Ridge it would take a minimum of approximately 12 months longer.

CONTEMPLATED PATTERN FOR AWARDING CONTRACTS FOR THE NEW EXPANSION WORK

Mr. YATES. Is it contemplated at the present time by the Commission that one contractor shall undertake the expansion which is set forth?
Mr. COOK. No, sir.
Mr. YATES. How do you propose to do it?
Mr. COOK. We propose at Savannah River to add the new construction to the present contract.
Mr. YATES. To the present contract?
Mr. COOK. Yes. At Hanford we are proposing there that we would have two or more construction contractors.
Mr. YATES. When you say "construction contractors" do you mean a contractor such as du Pont?
Mr. COOK. No, sir. At the Hanford job we will have the architect-engineers, based upon the design criteria furnished by GE, prepare plans and specifications to be used by the construction contractor for the construction of the proposed plant expansion.

Mr. YATES. One contractor will undertake the entire construction at Hanford on that basis?

Mr. COOK. No, sir. I said that we would have a minimum of two contractors and possibly more.

Mr. YATES. I see.

Mr. COOK. We would have one contractor on one type of construction, as a minimum, and one contractor for other construction. It is also true that under those contractors we would have specialty work, also, on a lump-sum or unit-price basis, under the prime contractor.

Our experience on the past construction at Hanford is that approximately 50 percent of the total cost of the job is lump sum. Even though the job is assigned to one contractor, 50 percent of the job is unit price or lump sum. We would envision a higher ratio on the new construction.

Mr. YATES. What do you propose for the other construction?

Mr. COOK. At the Paducah job we would propose to handle the work on a similar basis as it is now being handled, adding the work to the existing contract which we now have. Our experience there on the present work is that approximately 50 percent of that job also is on a lump-sum or unit-price basis, and we would hope to have a little better ratio than we have on this present work.

At the third site we would go through our regular contractor selection procedure and hope to engage the services of a well-qualified contractor who is capable of undertaking the whole job. He in turn would subcontract the mechanical and electrical work. It is envisioned that of the total cost of the job approximately 59 percent would be lump-sum or unit price.

Mr. YATES. I still did not get an explanation of the question I asked a few moments ago.

How do you let these contracts in levels for the construction? Let us take Savannah River, for example, where you have du Pont as your prime contractor. Du Pont is merely the overseer for the whole operation; is that correct?

Mr. COOK. Du Pont's job is a little bit different from most of the jobs which are undertaken. They undertake the responsibility for the research and development and the design and the engineering and construction and operation of the plant.

Mr. YATES. What du Pont does, actually, is to let portions of its entire contract out to various contractors on a cost-plus basis, does it not?

Mr. COOK. Some of the work is on a cost-plus-fixed-fee basis. That is particularly true of the engineering. Some of the work is on a lump-sum or unit-price basis.

Mr. YATES. What are the proportions?

Mr. COOK. On the total estimated cost of the Savannah River job, about 40 percent of the total cost of the job will be as a result of the lump-sum or unit-price work.

Mr. YATES. Are there cost-plus contracts on a third level, too?

Mr. COOK. No, sir; not on the third level, but there are on the second level.

Mr. YATES. I thought we were through with the second level.

Mr. COOK. On the second level, under du Pont, are mechanical and electrical subcontractors who are on a cost-plus-fixed-fee basis.

Mr. YATES. What check do you have that they, in turn, will not let their contracts below them, on a cost-plus-fixed-fee basis?

Mr. COOK. On all contracts, particularly cost-plus-fixed-fee contracts, the prime contractor must obtain approval of the Commission prior to entering into the contract.

Mr. YATES. Would you say that there are no cost-plus contracts on the third level at the Savannah River project?

Mr. COOK. I do not recall any now; to the best of my knowledge, there are not.

GENERAL STATEMENT

Mr. GORE. Mr. Dean, we have digressed from the presentation of your statement. We shall now return and you may continue off the record.

(Mr. Dean continued his general statement off the record.)

Mr. DEAN. Are there any questions about the construction schedules?

TIGHTNESS OF CONSTRUCTION SCHEDULES

Mr. YATES. The question is whether you can meet your construction schedules. I noticed, when I was home in Chicago recently, there were a lot of advertisements by the du Pont Co. asking for laborers to work in Savannah. Apparently there is a shortage of labor down there. Can you, in view of the expansion program that you are requesting, find a contractor to handle the construction and can you find labor to work?

Mr. DEAN. I think we will be able to find the labor, although labor today, particularly certain types of skilled workers, is very short in various areas. For example, at Cincinnati, we have had to advertise along with private industry which is building up heavily in that valley; DE and many other industrial concerns are in there and they have all had to advertise with large ads for skilled employees. The papers are full of them. Du Pont has had to advertise in large ads to get people at the Savannah River.

Mr. ANDREWS. Are you still operating a 54-hour week?

Mr. DEAN. At Savannah, yes.

Mr. ANDREWS. When you were here before, you told us that you had just gone on a 54-hour-per-week schedule. When you got on that 54-hour-a-week schedule you had an increase in the number of employees down there, did you not?

Mr. DEAN. That is true.

Mr. ANDREWS. What is your total number of people down there now?

Mr. DEAN. About 33,000. When we were up here last, it was in the neighborhood of 27,000 or 28,000 and going to the 54-hour work week made a substantial difference in the number of people hired per week. I think at that time there were something like a thousand requisitions per week and we were getting about a hundred hired. This has stepped up over each succeeding week since we were last with you.

Mr. ANDREWS. Do you have enough now?

Mr. DEAN. We are not at the original peak that we estimated, but there has been a substantial pick-up, something of the order of 700 a week.

Mr. ANDREWS. As I remember, your peak was 47,000?

Mr. DEAN. The peak now is 45,500 to be reached some time in October.

Mr. ANDREWS. Has your program been slowed down because of a lack of labor in Savannah, or are you current with your work now?

Mr. DEAN. May I ask Mr. Boyer to comment on that?

Mr. BOYER. I would say that at the Savannah River, we have had some slippage of our schedule. It was an extremely tight schedule at the start and there have been some problems in obtaining material. We did have some difficulty in getting the number of laborers that we needed back about the time when we were up here before. But the employee situation has improved. We are a little short on pipe fitters and the electrician situation was a problem at the time, but that has picked up.

Mr. ANDREWS. How far behind your schedule are you?

Mr. BOYER. Probably some months.

Mr. ANDREWS. Due to a shortage of labor?

Mr. BOYER. No; it is a question of materials and labor and there are some design problems that are involved in there, too.

Mr. GORE. You may proceed, Mr. Dean.

OPERATING COSTS

Mr. DEAN. I have one other chart that I would like to show you, and that reveals the operating costs. Our operating costs for the fiscal year 1953 are of the order of $887 million. It will step up under the expansion program to a point of $1 billion—let me give you an intermediate figure there.

When we are through with the present plants which are now building we will hit an annual operating cost of $1.4 billion. With the additional operating costs which are occasioned by the expansion program, it will come to $1.9 billion. The annual operating costs for the total program, including expansion, instead of being $1.9 billion would have been, if we had not made certain improvements, on the order of—perhaps Mr. Boyer had better give you some of these figures at this moment.

Mr. BOYER. This figure that the chairman is leading up to is a very interesting figure to us because, if you take the unit cost in 1947 for producing 235 and producing plutonium, and if we had not made any improvements as we have made in our various processes, the operating cost to be expected after this expansion would have been a year greater than the operating cost that we predict here. Likewise, if the plants had been built just as they were built in 1947, with no improvements such as Mr. Dean mentioned in this statement here, we could have expected the investment in plant to produce an equivalent amount of fissionable material, as we will be producing when this expansion is in and completed, and it would have been between greater than the investment that we will have with this expansion.

Mr. YATES. Have you had a lessening of your operating costs at those plants that have been in existence for some years, on a per-plant basis, rather than a per-unit basis, because your unit cost includes all your expansion as well?

Mr. BOYER. The total dollars have gone up, because our output has gone up tremendously. But operating costs have not gone up proportionately.

Mr. YATES. I do not quite understand this last chart. As I remember the previous chart, without the expansion program, you had a program where your output was constant, but here your base program costs keep on going up.

Mr. BOYER. They are leveling out there right at the end.

Mr. YATES. They level out, but still they are increasing. Why should that be? Presumably, if you reach a constant stage——

Mr. COOK. Your operating cost would go up slightly——

Mr. YATES. At least for your base program, should not the operating costs come down?

Mr. BOYER. You see, your volume is increasing right along, your volume of output. There are other things that contribute; there is added ore procurement. You remember, Mr. Dean pointed out that ore procurement kept on going up. And there will be quite a bit of development work in reactors and the like of that, which will last through the program.

Mr. YATES. Should not improvements in production and increased knowledge bring about a reduction in your operating costs?

Mr. BOYER. If you improve your efficiency, and you hold production constant; or if you know how to get more out of your equipment, you can raise the output of the plant with some added dollars but a lot less dollars than it would have been otherwise; that is the point that I want to make here—and this gets back to your argument about taking a Chinese copy of a plan and getting a new bid. These changes that we make save the Government money through improved efficiency.

Mr. YATES. But if what you have just told me is true, we should have increased output from your base program and yet your chart shows a constant level. If your last argument is sound, certainly your red bar on that chart should be increasing.

Mr. BOYER. We would hope that there would be some increases as time goes on. We do not think we have reached a level yet. In your design for a military requirement you cannot let the optimism of what you hope to do become a factor, which would be a basis for a military requirement.

Mr. GORE. Mr. Dean, have you finished with your general statement?

Mr. DEAN. I think this concludes my statement; that is the last chart.

Mr. GORE. Are there any questions on the part of committee members of Mr. Dean before we recess for lunch, after which we shall hear representatives of the Department of Defense.?

If not, the committee will recess until 1:30.

AFTERNOON SESSION

Mr. GORE. The committee will please come to order.

SUPPLY OF ORE

I suppose that before the committee should go further in its examination of the estimates it should first have some assurance, if such is to be had or is available, as to the supply of ore, without which this expansion program would be meaningless.

Mr. DEAN. Could we have the ore chart? We might start with that, Mr. Gore.

The necessary minimum goal, so far as the ore is concerned, is to get enough virgin ore so that you can feed all of your plants in existence. In 1952 you can see that it is pretty close to ——— tons, of which close to ——— or ——— tons is coming from the ———.

Mr. GORE. Off the record.

(Discussion off the record.)

Mr. GORE. In summary, do you and does the Commission feel that there is an assured supply of ore sufficient to keep the plants which you are requesting here in operation?

Mr. DEAN. We do.

Mr. JOHNSON. Yes, sir. We know where it is and how to get it.

Mr. GORE. Are there any other questions on ore?

Mr. YATES. I would like to ask one question.

What is the situation on the development costs? Are we incurring any development costs in connection with bringing the ore in?

Mr. DEAN. Yes. Each time you have an ore discovery, you run into some kind of a development cost for processing that ore, because the materials are different. For example, in some places you find it in limestone, and in other places you find it in granite. It is in all types and forms.

Mr. YATES. I can understand that.

Mr. DEAN. Each calls for a different process.

Mr. YATES. Are you incurring some similar development cost in the foreign lands, as well as in this country? What do you do in developing those mines in South Africa? Do we invest our money?

Mr. DEAN. In South Africa it is done by the Government and the mining interests, which are very closely related.

Mr. YATES. Which South Africa?

Mr. DEAN. The Government of the Union of South Africa. They are building the plants for processing the uranium in the gold mines. They have made some loans through the Export-Import Bank, which are repayable. We simply buy the ore at a price based somewhat on cost, having a recognition for the cost of extraction.

Mr. GORE. Before going to the actual estimates, some of the members of the committee may have some questions on general policy. Mr. COTTON?

Mr. COTTON. I just had one question.

CONSTRUCTION WORK

I do not want to rehash a subject which was discarded yesterday, but on the matter of the construction work, does the Commission have about the same group of engineering and construction companies who are familiar with your work, who do most of it, or do you encourage new concerns to enter your field? What is your policy in this respect?

Mr. DEAN. The policy is to try to encourage new concerns to come in. Where you run into a conflict with that policy is, for example, where at an existing plant it seems as though you would save, because the contractor is there, in money and time, by having him take on the extension.

For example, at Oak Ridge, where we had the Maxon Co. constructing K–29, we made quite a study to find out what it would cost in terms of money and time to bring in a new contractor for the job. The Maxon Co. already had the offices there, the administration building, and so on. They were on the ground and ready to go at that time. We estimated it would cost something in the heighborhood of 6 months of time, and approximately $6 million to bring in a new contractor to do the K–31 job, although we would have liked to do it.

Our desire would be to bring in a new contractor, simply to spread the work.

Mr. COTTON. Do you have any particular method of educating new companies so that you have a larger field from which to draw?

Mr. DEAN. There is a great effort, Mr. Cotton, to bring in the new companies. They come in in many ways.

For example, we have about five separate companies as operators and constructors on the ARCO lot alone, at the ARCO installation. Each one of the facilities out there, whether it is a reactor or a chemical processing plant, is done by a separate processor. With but one exception, no one is doing two of them.

Several industrial concerns have come into the program in the last year asking this question:

> We should like to have some of our people cleared so that we can take a look at your reactor development work and see if we could not invest some of our own money in this business of reactors.

As a result of that we have had four groups of private utilities and associated concerns come into the program. We have cleared the top 15 people or so in those companies, and they now know pretty much what the business is.

Mr. COTTON. Do you welcome new and reliable concerns in either the engineering or construction fields seeking to familiarize themselves with your requirements and getting into your field, or are you inclined to fear the danger of leakage of information by new ones coming in?

Mr. DEAN. No; we are not afraid of that, and we welcome them. We have set up during the last 6 months an office which does nothing else but deal with private industrial concerns who want to know about the program. It has become such a big program recently, and so much interest has been generated, that a full-time office has been set up.

We were fortunate enough to get a man who had been the head of research and development of one of the very large corporations to take that office. He has come with us to do that.

NEW SOURCES OF ORE

Mr. COTTON. I have just one other question. Do you still offer an inducement of any kind, or a reward, for discovery of new sources of ore in the United States?

Mr. DEAN. Yes, we do. We have two types of bonuses. One is the original bonus, which was designed to encourage people to find a rich deposit in the United States.

We have another type which encourages people to find substantial deposits of any type of uranium ore. If they run up to a certain tonnage, they get a bonus on that.

We also increased some of the tonnage allowances or the haulage allowances, I should say, in the Colorado area, because we found out there was not quite enough incentive to make them dig out there. This has paid dividends, and I think is partly reflected in the increased domestic supply.

Mr. COTTON. Off the record.

(Discussion off the record.)

Mr. COTTON. Thank you, Mr. Chairman.

EXPANSION PROGRAM

Mr. GORE. What are your firmest estimates in this expansion program, Mr. Dean?

Mr. DEAN. I am not sure I understand.

Mr. GORE. Your firmest estimates of cost. It would appear to me that those should be in the construction of the additional gaseous diffusion plants.

Mr. DEAN. I think that is true, largely because of past experience.

Mr. GORE. You develop guideposts or estimates?

Mr. DEAN. That is correct.

Mr. GORE. At Oak Ridge you are requesting $464 million for the construction of additional gaseous diffusion facilities. How would that compare with the K–31 which you have recently completed?

Mr. COOK. The new facilities at Oak Ridge are more nearly comparable costwise to the facilities under construction at Paducah. Our estimate of the cost is based on the facilities now under construction at Paducah.

The estimate for the additional work at Oak Ridge and Paducah is fairly close to the present estimate for the construction at Paducah; $472 million.

Mr. GORE. How has your experience compared with your estimates at Paducah?

Mr. COOK. Our original budget estimate at Paducah was $472,400,000. Our recent analysis of this estimate indicates that if we do not have increases in labor or some other unforeseen difficulty we should be able to construct the job within the original estimate.

Mr. GORE. I think we might say "Hurray" right about now. That is the nearest you have come to hitting an estimate. Is that right, Mr. Dean?

Mr. DEAN. On a very large facility I think that is true. This will probably be about on "the nose."

Mr. GORE. Well, maybe we are making some headway.

You have based your estimate on this additional facility, in large measure, on your cost experience at Paducah?

Mr. COOK. Yes, sir.

Mr. GORE. Then could you say, Mr. Boyer or Mr. Dean, that this estimate of $464 million would be reasonably firm?

Mr. BOYER. Mr. Gore, we feel that it is reasonably firm for the type of projection that it is. It is not an engineering estimate of the type which is based upon engineering design, which gives you a precise estimate.

I think your discussions here have developed the very point which I wanted to make that the experience with the Paducah job gives us great confidence in the figures we have projected here for the gaseous diffusion expansion at Oak Ridge and Paducah.

(Discussion off the record.)

Mr. GORE. In summary, your estimate for the Oak Ridge expansion and the Paducah expansion, you feel, is reasonably firm?

Mr. BOYER. Yes, sir.

APPROPRIATIONS REQUIRED IN 1953

Mr. GORE. What part of this appropriation request would you need in the following fiscal year? Would you need as much as you have requested here?

Mr. BOYER. We feel that we would, Mr. Gore, for the purpose of making the contract and making the obligations which are required to initiate this work. You see, you have to make contracts to cover essentially the major portions of the work. The procurement is initiated just as promptly as the designs are firm.

So, while we are asking for the $2.9 billion, we would expect to spend only approximately $600 million in the fiscal year 1953. But to initiate the work and make the maximum progress we wish to be in a position to contract and issue procurement orders which would involve up to the amount we are requesting in this budget for these facilities.

Those are shown on a page here, on the rate of expenditures for the various years.

Mr. GORE. Yes. I saw that.

REDUCTION OF REQUEST

The statement was made yesterday that the program has been whittled down by about $2 billion during the last 5 months. How has that occurred?

Mr. BOYER. Well, $1.1 billion of that came from eliminating the new site and other reductions.

Mr. DEAN. You had better explain the new site.

Mr. BOYER. That was the new site for the reactor program.

Mr. GORE. You are expanding at Savannah River and Hanford, rather than selecting a new site?

Mr. BOYER. That is right. That added tremendously to the cost, when you went to a new site.

Eliminating the new site cut down on the cost tremendously. The Department of Defense was willing to forego the dispersion at the third site, and was also agreeable to an expansion at Hanford, which made it much cheaper for us to go to the existing sites. Then there was a reduction in the contingency item. There was a reduction in power, because we had put in the original estimate money for building power facilities of our own.

Then there was an elimination of the materials plant, amounting to $90 million.

We cut down on the reactor development items in the expansion by $58 million.

We reduced money we planned to use for the community facilities, making every effort to avoid building new communities.

That brings about a total of approximately $2 billion. When you add it to the $1.1 billion coming about by the elimination of the new reactor site and simplifying the reactor arrangement, it is about $2 billion.

FEASIBILITY OF POSTPONING THE PROGRAM FURTHER

Mr. GORE. What would be the opinion of the Commission, Mr. Dean, on the advisability of postponing the whole program until January, in the hope that another billion could be saved?

Mr. DEAN. Frankly, having lived with this for the last 2 or 3 months, I do not think you are going to save another billion, or anything approximating it, by a reexamination of the program. We have eliminated wherever possible all expensive features, and numerous special items—may I go off the record for a moment?

(Discussion off the record.)

Mr. GORE. How much money do you think could be saved by postponing this?

Mr. DEAN. That is a very hard question. From what I have seen of it, I do not think you would save any substantial amount. I really do not.

Mr. BOYER. I would make the same appraisal, Mr. Gore. I think possibly by reviewing what we have talked about here this morning it would help. On the diffusion plants, we have incorporated our very latest thinking into them.

This is going to be a lower-cost diffusion capacity than we started out with, certainly, in 1947. This will be the very latest, and will have the latest improvements so that to expect to save any money in the gaseous diffusion plant I think is something you can write off.

The reactor program involves about a half-billion dollars. We have greatly reduced the cost of that from what it otherwise would have been.

(Discussion off the record.)

Mr. BOYER. I might add further that in the studies which have been made, which Mr. Dean referred to in his opening statement, there were some 25 cases studied. We reviewed practically every combination of plutonium production and gaseous diffusion production, to see what would give us the maximum number of weapons for a given investment.

This case which we have here represents, in our opinion, and based upon our analysis, the capability for producing the maximum number

of weapons for the dollars invested. I think you understand what I mean.

Mr. GORE. Yes.

Mr. BOYER. We have given a great deal of thought and a great deal of study to determining what we can get in the way of maximum production for the money which we request.

Mr. GORE. Did the incentive for the reexamination originate within the Commission, or was it prompted by the Bureau of the Budget?

Mr. DEAN. The reexamination took place about a month ago, at the request of the Senate Appropriations Committee. It was Senators Saltonstall and Maybank.

When I referred to the fact that this had had a National Security Council review, they said:

> Would you have any objection to going back, in view of the heavy obligations in the defense program, and having this reviewed again by the National Security Council?

I said: "We would have no objection at all."

We went back. We had this reviewed, and we had statements prepared by each one of the members of the National Security Council. I believe those were sent to this committee. They were certainly sent to the Senate committee which requested them.

This is a re-review which took place approximately a month ago.

Mr. GORE. Are you firm in your opinion that another review would not save the taxpayers some money?

Mr. DEAN. This is my best opinion: That another review of this would not save the taxpayers money.

I do believe I should say this: Any place along the line, if we see a chance to save, we are going to save. But I cannot see that our costs of gaseous diffusion or the reactor expansions—those are the major items in this expansion—are going to be very far off. I do not think any review of those is going to save anything. I think the savings have been made by locating them at the least expensive places, and other things of this kind. Those decisions have been made and have resulted in about a $2 billion saving over the original estimate of $5 billion-plus.

PLUTONIUM EXPANSION

Mr. GORE. Well, let us go to your plutonium-expansion program. Would you say your estimates for the expansion at Hanford are less firm than your estimates for the expansion of uranium?

Mr. DEAN. Yes, I would say so, without any question. We had many choices we could have taken when it came to the production of plutonium. There were many possibilities open to us, and some very good ideas.

At the same time, we feel strongly that in this program it is only worth while if you are buying time with it. We feel that the important thing is to get the plutonium in a hurry and at the least cost possible. That is what we have done.

Mr. BOYER. There is this situation, however: That is somewhat parallel to the gaseous diffusion plant. As you will recall, we requested approval for a reactor at Hanford. That is a graphite reactor.

(Discussion off the record.)

Mr. GORE. You gentlemen, of course, understand that you have permission to edit this record.

Mr. BOYER. It was estimated that it would cost $64½ million, so we will work along with that.

Here, again, our most recent analysis of the cost statements indicate that we should come out within that approved amount of money. So that our confidence in estimating the cost of the classified reactors is apparently pretty good, because there is an example there where we have hit it on the nose.

I think that adds confidence to the ability to design and estimate; or, rather, the ability to estimate the projection as to the cost of the Hanford expansion.

While I agree that these are less firm than the gaseous diffusion plants, I think it is not a bad projection.

SAVANNAH RIVER

Mr. GORE. What about your estimates for expansion at Savannah River? Are they as unfirm as the ones you gave us for the project at first?

Mr. COOK. No, sir. They are pretty firm.

Mr. BOYER. The amount of the budget involved in the Savannah River estimate, of course, is not a great portion of the budget, so, that if there is some lack of firmness there it will not affect the over-all figure.

Mr. PHILLIPS. Mr. Chairman, may I say something there?

Mr. GORE. Yes.

Mr. PHILLIPS. I quote from page 12 of the same book from which we are now reading:

> This estimate is not based on detailed engineering design and specifications, inasmuch as 18 to 24 months would be required to secure such engineering estimates. The estimates, while necessarily preliminary, have been examined crefully and are considered to be reasonable.

And so forth.

You seem yourself, Mr. Boyer, to be somewhat in doubt as to the accuracy of the estimates you are giving us on this particular expansion program. Does that refer to other items than the one you are talking about, or does it refer to the entire program?

Mr. BOYER. Mr. Phillips, that, of course, makes reference to the fact that they are not based upon engineering designs, where you lift off the tons of steel and make estimates for man-hours of work.

Mr. PHILLIPS. I understand, but that also means you are not apt to be very close to the final figure.

Mr. BOYER. Well, Mr. Gore was developing our experience. Our experience in the gaseous-diffusion field has been good. We have been able to project, so that it gives us a feeling of confidence that those figures will be proven out by the engineering estimates.

We want to be reasonable in our statements, but we are as firm as we can be, keeping the nature of the project in mind.

Mr. COTTON. I have just one question, please.

It seems to me that in the light of the discussion yesterday, when it was brought out that this whole program was so much a matter of new development that you could not actually have engineering plans for the buildings themselves for the purpose of having contractors

bid, that if that is true it must also be true that your ultimate cost may vary a great deal from your estimates. Is that not logical?

Mr. BOYER. Here, again, sometimes you get your neck stuck out. But we do not believe that that will result in great variations in the projections that we have made, for the reason that we have experience now as to what it costs us to build the expansion at Oak Ridge, and we have an analysis of what our costs are running at Paducah.

We have confidence that our projections are as firm as any we can make.

We have made some that have proven out to be quite accurate. As Mr. Gore pointed out, we should ring the bell.

Mr. COTTON. But every variance from your original plans is costly, whether you are on a lump-sum contract or a cost-plus-fixed-fee contract. That is true, is it not?

Mr. BOYER. That is correct.

Mr. COTTON. I cannot escape the conclusion that if you can estimate reasonably close on this thing there ought to be some parts of this work which could be let out to a lump-sum bid. If no part of it can be let out to a lump-sum bid, how can your estimate be very accurate?

Mr. BOYER. Well, as was pointed out yesterday, Mr. Cotton, actually we will use the lump sum and unit prices. By the "unit prices" I mean that you get bids on concrete, you get bids on asbestos covering, you get bids on grading, and so forth. We expect that the amount of lump-sum or unit-price work in the gaseous diffusion program will run on the order of 50 to 60 percent. That means you will pick up those segments.

For example, let us take the steel work. As soon as you get the steel work designed you can get the bids on the furnishing and erection of the steel work. That can be done on a unit-cost basis. You can make a contract on unit costs for cement early in the game, because it just takes so many yards. You give him an approximate guess as to how many yards you will have, and then he bids on what he will furnish cement or concrete per yard.

Mr. COTTON. I have just one more question.

Mr. GORE. Off the record.

(Discussion off the record.)

PORTION OF WORK PERFORMED ON A UNIT-COST BASIS

Mr. COTTON. You may have answered this already, but have you a general estimate of what percentage of the entire expansion program, if it all goes through, would, in your opinion, be on a unit-cost basis?

Mr. BOYER. The unit cost or lump sum?

Mr. COTTON. I mean to include both.

Mr. BOYER. It would probably be in the range of 50 percent.

BIOLOGY AND MEDICINE

Mr. PHILLIPS. On page 15, in the general breakdown, before you go into the details, you call attention to an additional million dollars for the biology and medicine program. I think you know I am very much interested in that program, and I think it has had a rather small amount of money in the past.

However, I should like to know why this has to be put into an emergency budget as compared to the regular budget of a few months ago or of next year.

Mr. DEAN. I think Dr. Warren can quickly explain, Mr. Phillips, exactly what those things are allotted to, and why they are in here now, rather than going in the regular budget.

Dr. WARREN. They are primarily in because, as the expanded program develops, new elements which are injurious to health are coming into use, and because there are increased waste disposal problems.

Mr. PHILLIPS. What have you to do with the waste disposal program?

Dr. WARREN. We have to set the standards in biology and medicine for safe waste disposal so that the people around the plant can be properly protected.

Mr. PHILLIPS. How much did you get in the regular budget, Dr. Warren?

Dr. WARREN. In the regular budget as it stands we have $23.4 million, I believe. Is that right, Mr. McCarthy?

Mr. MCCARTHY. $23,285,000.

Mr. PHILLIPS. $23,285,000. Why do you not take the million dollars out of your $23,285,000 and spend it on what you now think is a more important and more urgent need, and then come back in the regular budget and ask for the money for your routine program?

I should like to discourage, Dr. Warren, this idea of coming in two or three times during the year for supplemental requests, if I can.

Dr. WARREN. I certainly agree with you on that, sir. If it were not for these very special problems which have come up I would not be here.

As to the regular program, we have annual contracts which make up the bulk fo our expenditures.

Mr. PHILLIPS. How much of that money is committed on the regular contracts?

Dr. WARREN. It is practically all on the regular contracts, sir. Some of them are lump-sum contracts, and some are cost reimbursable, but they are all contracts made in advance.

I might cite some of the specific problems which we have. For example, very recently we have found that some of the common compounds, such as the—this ought to be off the record.

(Discussion off the record.)

Dr. WARREN. We also have found that we have a need to learn about the 25 to 100 R range of bodily exposure much more rapidly than we had anticipated. We have an allowance for that.

Further, in relation to the fall-out studies, from our tests we have found that we need to learn a great deal more and more rapidly about the contamination of fall-out and the contamination of irrigated areas in particular in relation to that fall-out.

We also have felt it necessary to speed up our work on the biologic effect on neutrons, as the development of the reactor program and these new giant reactors is coming into the picture.

MALLINCKRODT CHEMICAL WORKS RENOVATION

Mr. PHILLIPS. Please turn to page 22 of the justifications. I have not had time to check back on this, but I notice now that you have something like $1.8 million for the renovation of the Mallinckrodt

Chemical Works refinery. What came up about that in the regular hearing? Did you ask for something for that in the regular hearing and were you refused on it, or did you testify on that in the regular hearing?

Mr. BOYER. It might help, Mr. Phillips, if I mention here that in this other section of the budget—are you on the other section?

Mr. MCCARTHY. This is part of the expansion program.

Mr. COOK. There was nothing in the previous budget covering this item, sir.

Mr. PHILLIPS. Why do you have to have $1.8 million to renovate now?

Mr. COOK. The $1.8 million is to cover the cost of development and engineering to build a plant at a later date for the replacement of the refinery at Mallinckrodt.

Mr. PHILLIPS. When do you expect to begin to use that money?

Mr. COOK. The engineering and development work will start right after the beginning of this fiscal year. You will notice in the table that the balance of the money would be requested in future years. It is estimated now that that would be in 1954.

Mr. PHILLIPS. How much is the total?

Mr. COOK. The total amount is $9 million, $1.8 million being requested in this supplement, and the balance to be requested in 1954.

Mr. DEAN. I should say, Mr. Phillips, that I think this is a very hazardous operation. We have had one serious explosion at Mallinckrodt.

Mr. PHILLIPS. There is something in my memory about that, which I cannot bring back close enough to ask about. However, I believe something came up about it in the regular hearing. I shall have to check.

ADDITIONAL SCHOOL FACILITIES

Please turn to page 41. You have an item there for "Additional school facilities." The school year is about to end. The new school year will not start until September. Why are you asking us for more school facilities than you asked for in the regular budget?

Mr. COOK. The community facilities listed here are to take care of the increased population at Hanford and Oak Ridge caused primarily by the proposed expansion program.

Mr. PHILLIPS. How many schools are there? How many actual school buildings are involved?

Mr. SAPIRIE. In fiscal year 1953 we plan on one additional elementary school at Oak Ridge and the rehabilitation of one previously used.

Mr. PHILLIPS. You mean you are building one school building at Oak Ridge for probably three-quarters of a million dollars?

Mr. SAPIRIE. That is right. And the rehabilitation of an old school.

Mr. PHILLIPS. I have allowed you a quarter million dollars for that, on your own estimate.

Mr. SAPIRIE. That is right.

Mr. PHILLIPS. Do you not think you can get a pretty good high school for three-quarters of a million dollars?

Mr. SAPIRIE. That would be a grade school rather than a high school. It would have a capacity of 465 students. That would provide for a unit cost of $14.75 per square foot, which is comparable to the cost of

the last school we built at Oak Ridge, corrected for the 9.5 increase in the cost index between June 1, 1950, and March 1, 1952.

Mr. PHILLIPS. I am curious about this matter. I wonder if my friend from Tennessee, Mr. Gore, would tell me what the average cost of school buildings per square foot or per pupil is in the State of Tennessee.

Mr. GORE. I do not have the figures, Mr. Phillips. It is pretty high.

Mr. PHILLIPS. I doubt if it is that high. I doubt if it is that high in California, and we go in for school buildings rather than teachers' salaries.

OFFICE FURNITURE

On page 188 of the justifications you show an item of $80,000 for "Office furniture and machines." Is that for more furniture for Washington?

Mr. BLOCH. That is additional furniture and office equipment to take care of the anticipated increase for the staff in the Washington office.

Mr. PHILLIPS. I am suggesting that you are buying a lot of furniture.

Mr. BLOCH. The projected increase for Washington is approximately 270 employees.

Mr. PHILLIPS. That is what I am working up to. You have all of this increase in this program, for an expansion program, presumably to make weapons and atomic bombs. I find that most of your employees are going to stay right here in the city of Washington. Are you going to make the bombs here?

Mr. BOYER. Mr. Phillips, may I comment on that?

I think that what the Government gets for its investment in the Atomic Energy Commission employees to supervise and plan work of the magnitude we are talking about here is a great bargain.

Mr. PHILLIPS. I have to take your word for it.

Mr. BOYER. When you look at the small number of people which we have in Washington, for a program as complex and extensive as this one, I think that we are doing probably with too few, if anything. There might be criticism as to why we do not have more in the program.

Mr. PHILLIPS. I do not think you are going to make many bombs right here in Washington, and I am beginning to think that is the way the Air Force also makes airplanes. I think if we would take some of those people out of the Pentagon and put them in the factories we might get some planes. That is just a personal comment.

FEASIBILITY OF FINANCING ATOMIC EXPANSION FROM MILITARY APPROPRIATIONS NOW AVAILABLE

Now, Mr. Dean, you heard my comments yesterday to General Bradley. I have a very firm conviction in my mind that your principal argument here yesterday and today has been on the merits of the program; that is, the need for an expansion of the program.

Suppose we admit all that. The combined military and atomic arms of the Government probably have $100 billion which they have not spent. Now, if this request is so urgent, why do we not take

$3 billion out of that balance, rather than some of the things which we originally planned to spend it for? Would that not be quite satisfactory to you, to allow this money to be spent out of the funds already appropriated? When that money runs out, if and when it does, then we will talk about putting more money in the fund.

Mr. DEAN. Well, if I understood General Bradley, and I do not think I should be anwering the question, because I do not know how to parcel out his funds——

Mr. PHILLIPS. All he did was to pass the buck over to you very nicely, and just say he did not know anything about the money, which was no news to this committee, from the military but that you would answer my questions regarding the money. I am now asking you.

Mr. DEAN. I think all he meant to say by that and all that I could really testify to is what the cost will be for the facilities if you are going to have the number of bombs for which they have asked at the time that they have asked to have them. I really think that is what the general was referring to. I do not think he had any competence, particularly, to talk about how long it takes to build a gaseous diffusion plant or a pile, or as to the cost of those facilities. I think that is what he was passing the buck on.

We are happy to have that buck passed to us, because I think with our past experience we can give you reasonably good estimates of what it takes in terms of dollars and building if you are going to have these bombs by these dates.

Mr. PHILLIPS. Well, I am at a loss to know how we are going to get down to some central point in this money-spending program, when all the military agencies of Government seem to consider themselves separate spenders.

Mr. Chairman, can you help me figure out where we ought to find out why we cannot take the $3 billion out of the money already appropriated and spend it for things which appear at this time to be more urgent than some things appeared to be last February?

Mr. THOMAS. I think you have something if you can get the unobligated balance and separate it from what they have obligated. I think that is the keynote to it.

Mr. PHILLIPS. Let me ask one more question, then.

ELECTRICITY REQUIREMENTS

When you came to the time you were talking about power with the TVA, did you not have a bid from the Electric Energy, Inc., as well as the TVA?

Mr. BOYER. Yes.

Mr. PHILLIPS. Do you remember how nearly comparable the rates were?

Mr. BOYER. Yes.

Mr. PHILLIPS. Did not EEI underbid the TVA?

Mr. BOYER. No. As it stands here the TVA bid came out with a millage based upon the present index of 3.695 for a kilowatt-hour, and the EEI bid for the 100 percent case was 4.04 per kilowatt-hour.

Mr. PHILLIPS. Well, that is fairly close. EEI has to pay taxes and other helpful items in the Government picture.

How much of the current order are you giving to EEI as compared to TVA?

Mr. BOYER. We feel that 75 percent to TVA and 25 percent to EEI will be the most attractive arrangement, for the reason that the 75 percent bid from the TVA was lower than the 100 percent, because we did not have to escalate some of their higher cost fuel. Then it also gives us a participation by two groups in supplying the interim power, a participation by two groups in the possible absorption of power, a participation by two groups in the back-up of power in case of some interference with the existing plants, and it gives us dispersion.

Furthermore, it should put EEI in a position to give us their best proposition, because they can handle 25 percent by adding two units onto their existing plant at Joppa.

The TVA has capabilities for expanding their plant at Shawneetown, which is at the location.

Therefore, by using the incremental effect—in other words, adding to existing facilities—they should be in a position to give us a better proposition than if they built a new plant.

Mr. PHILLIPS. Did you have a proposal from EEI or from any of the utilities that they would combine a number of utility producers into an agency as a supply agency for you?

Mr. BOYER. Of course, EEI, as you know, is a combination.

Mr. PHILLIPS. That is six companies?

Mr. BOYER. Five.

Mr. PHILLIPS. I understood that they proposed to expand that, if you needed more current.

Mr. BOYER. They would have made a change in their structure and built a new plant, but their proposal to build that new plant was the one that came out with the higher cost, which I quoted you originally.

Mr. PHILLIPS. 4.04?

Mr. BOYER. That is right.

Mr. SAPIRIE. It might be well, Mr. Boyer, to point out that that amounts to approximately $2,673,000 per year.

Mr. PHILLIPS. On the basis of what percentage of consumption?

Mr. SAPIRIE. That is the difference between the EEI proposal for 100 percent and the TVA proposal for 100 percent.

Mr. PHILLIPS. How much per year?

Mr. SAPIRIE. $2,673,000 per year.

Mr. PHILLIPS. Now, do you think it is in the public interest to support a utility which is going to build at its own expense the necessary plant, and which is going to pay taxes on its income? I presume they have other kinds of taxes which are applied against them in the State of Tennessee, ad valorem, for example, which would be the equivalent, at least, of $2 million.

Mr. BOYER. Mr. Phillips, I might comment on that. We did a great deal of work in attempting to analyze those factors. As you analyze them, the TVA tells us that they make a certain return to the Government. The EEI, of course, pays income taxes and other taxes. The TVA says that they, in areas where they serve other than Government, pay payments to the States in lieu of taxes.

Mr. PHILLIPS. I think the records of this committee, Mr. Boyer, will show that what the TVA pays in lieu of taxes is not the equivalent of what it would pay as a private utility.

Mr. BOYER. Well, the point I wanted to make was that we have attempted to analyze all these factors. You find that the private contractor must have guarantees which assure him of his ability to

cancel out and absorb, over the period of time the Government would have paid for it. There is a guarantee as to the percentage of power that the Government would take, and that the Government would have paid for that portion of the plant.

Mr. PHILLIPS. You mean by amortization?

Mr. BOYER. By amortization. In other words, there is very little risk on the part of a private firm or a public firm. I do not care to debate the subject of private versus public power.

Mr. PHILLIPS. I was just asking. You have answered the question. You have gone into that question, and there is a difference of $2 million plus a year. I have no other questions on that.

I still have not gotten an answer as to why we should not use $3 billion out of what we have already appropriated, and take a little off the less desirable features of the program.

Mr. GORE. In order that the record may be clear, the payments in lieu of taxes paid by the TVA apply to realty and do approximate the payments.

Mr. PHILLIPS. They approximate the ad valorem tax, I think, which would be levied against a private utility. However, the question under consideration, in Mr. Boyer's answer and in my mind, was whether the total in lieu of taxes paid by the TVA in this case approximates the total of taxes which would be paid at the Federal, State, and local levels by a private utility.

Mr. GORE. Insofar as the ad valorem tax is concerned, I think that is true. Now, insofar as the income taxes are concerned, of course, the TVA does not pay income taxes on the profits it makes. As a matter of fact, all the profits which the TVA earns are the property of the Government.

On the other hand, the private utilities pay taxes on the profits which they make. So I think we may be splitting hairs in one case. The private utilitity pays taxes on a part of its profits. All of the TVA profits belong to the Treasury.

CONTINGENT CANCELLATION CHARGES FOR ELECTRIC POWER

Mr. YATES. I should like to refer Mr. Dean's attention to page 13 of the nonclassified justifications, under the item of the electric power requirements.

I should like to have an explanation of the $277 million which is requested there.

Mr. BOYER. $220 million of that is put in in order to provide funds to the Commission to initiate construction on a power plant should we be unable to arrive at satisfactory negotiations with the groups of companies who are now negotiating with us for power for a site to be selected.

In addition to that there is $57 million, of which approximately $28 million is for cancellation charges to the TVA, and approximately $28 million for cancellation charges to EEI.

Mr. YATES. Have those been agreed upon?

Mr. BOYER. The cancellation charges?

Mr. YATES. Yes. Is that contingent?

Mr. BOYER. That is contingent upon the type of negotiations which we work out.

Mr. YATES. Your testimony in this respect is tied in with the material appearing on page 23 of the justifications, is it not?

Mr. MCCARTHY. That is right, sir.

Mr. DEAN. That is right.

Mr. BOYER. That is correct.

Mr. YATES. All right. What is the status of those negotiations with EEI and TVA? It would appear from an examination of the justifications, which I have made, that you do not have a firm deal with EEI as yet. Is that correct?

Mr. BOYER. That is correct. It is in the state of negotiation. We have to make our best estimates as to what the guaranties will be.

Mr. YATES. In the event you are not able to arrive at a deal with EEI, do I understand your justifications correctly in proposing that you will build a generating plant?

Mr. BOYER. Well, not in the case of the Paducah expansion. This is in the case of the new site.

It is not the EEI we are negotiating with. There is a group of 15 utility companies which have pooled themselves together and have made us a proposal for supplying power to a site in the Ohio River Valley. Now, we have had enough discussions with them that they have given us an indication of what they would be willing to supply power for.

Mr. YATES. Referring your attention again to page 13, this statement appears:

> Such cancellation costs would arise if the AEC power requirements were terminated or drastically reduced.

Mr. BOYER. That is right.

Mr. YATES. Apparently the amount which is involved in the cancellation clause is $220 million, or is it $277 million?

Mr. BOYER. The $277 million is set up here.

Mr. YATES. Yes.

Mr. BOYER. Of which $220 million provides for funds for either construction of the plant for the new site, or to cover cancellation costs should we negotiate a satisfactory deal with the group of 15 companies.

Mr. YATES. Cancellation costs with whom?

Mr. BOYER. With the group of 15 companies; this group of companies who are associating themselves to supply power for the new gaseous diffusion site.

Mr. YATES. Have you entered into a contract with them yet?

Mr. BOYER. We are negotiating with them, because we cannot tell them where the location is, yet, but we can develop the bases and the elements which go into the cost and the contract.

Mr. YATES. Why do you need so much money for a cancellation cost if you have not entered into the contract yet?

Mr. BOYER. But we will during the period that this appropriation is in effect, if you understand.

Mr. YATES. But a cancellation cost, as I understand it, is to reimburse them for an investment which they have made and covers the time when you decide at a latter date that it is not deemed to be to the best interests of the operation of the Atomic Energy Commission, and you change your mind, and, therefore, you cancel out their contract.

Mr. BOYER. That is right.

Mr. YATES. That is the incongruous part of it to me. I cannot understand why you want an appropriation of $277 million.

Mr. BOYER. Let me see if I can make it clear. I think I see what is bothering you now. When you enter into a contract with these people, they have to borrow large sums of money.

Mr. YATES. That is correct. What is it contemplated they will borrow?

Mr. BOYER. They will borrow probably 95 percent.

Mr. YATES. How much is that?

Mr. SAPIRIE. Approximately $400 million.

Mr. BOYER. It will be in that order.

Mr. YATES. Will the AEC be the only customer for the area?

Mr. BOYER. Right.

Mr. YATES. And they are going to undertake to build the facilities to supply AEC with power?

Mr. BOYER. 1,800,000 kilowatts. That is a tremendous amount of power.

Mr. YATES. All right. That raises the next question in my mind. This statement says:

> If the AEC power requirements were terminated or drastically reduced.

Under what conditions could the AEC power requirements be terminated or drastically reduced?

Mr. BOYER. Suppose, for example, that you get a situation where they agree they are not going to make fissionable material any more.

Mr. DEAN. This is after the generating equipment is built. The power plants are in there 5 years after they are put in. Then we would decide we are not going to use it, for some strange reason. Peace might come or something. That is the type of cancellation which is involved. It is not a cancellation of the contract before anything is built, but is a cancellation and a walking out on our agreement to buy power for the period of 5 or 10 years.

Mr. YATES. Would it not be more logical to have an option to buy the facilities from the utilities rather than to pay them $277 million as cancellation costs?

Mr. BOYER. Well, it may be. It depends upon what you can do with the power.

Mr. YATES. They are investing $400 million in this, and you want to set aside $277 million as cancellation costs. That does not make sense.

Mr. BOYER. You see, the EEI will be investing money at Paducah.

Mr. YATES. That is right.

Mr. BOYER. The TVA will be investing money at Oak Ridge, in addition to the supply for Paducah.

Mr. YATES. That is right.

Mr. BOYER. And the 15 companies will be investing money.

Mr. YATES. At site X.

Mr. BOYER. That is right. So you have the $400 million to cover the group of 15 companies.

Mr. YATES. At site X.

Mr. BOYER. Not the TVA or the EEI portion. We will be unable to get these people to enter into a contract with us unless they have assurance of being able to get their money out, in case of cancellation. We cannot make a long-time commitment under the Antideficiency Act unless we have either the money or the authority to do so.

Mr. YATES. But you are only asking for authority here to pay the costs which are arrived at with the 15 companies in the event that your power requirements are curtailed. You want to pay them, according to this justification, $277 million.

Mr. BOYER. No.

Mr. YATES. Or $220 million.

Mr. BOYER. Well, it will not actually be $220 million. You see, that is what we put in to start construction of a plant in case we could not make a deal with him. Actually, the amount of the guaranty, as we estimate it now, from what they have given us in their proposal, will be $170 million to cover the cancellation.

Now, they have another problem, in that they may need some type of loan guaranty on a portion of the funds they have borrowed from the insurance company.

Mr. YATES. You mean from the Government?

Mr. BOYER. Yes; from the Government.

Mr. YATES. You mean a secondary guaranty?

Mr. BOYER. Yes; a secondary guaranty. That might add to the liability of $95 million when it is all finished up.

Mr. YATES. Has the AEC ever built a generating plant up to the present time?

Mr. BOYER. Yes.

Mr. DEAN. At Oak Ridge.

Mr. BOYER. And Savannah River.

Mr. YATES. These are the property of AEC rather than TVA in each instance?

Mr. BOYER. Yes.

Mr. DEAN. They are all on our own property. This would be a little different system. If you had a contract with the 15 utilities in the Ohio River Valley, serving as they do such States as Kentucky, Ohio, and Indiana they would probably build the facility at such a point as to integrate it into their system in the event of cancellation, so that the power could be absorbed in their entire network. Unlike Savannah River and Oak Ridge, the generating equipment would not be built on our site, in all probability.

Mr. YATES. I cannot see the desirability of providing so great a cancellation cost, leaving the companies with their original investment, with their original facilities intact, and paying this additional amount of money. Can the companies not use the facilities elsewhere?

Mr. BOYER. What they tell us is this: They say they will absorb the power in case we cancel out, as fast as they are able to do so, taking into consideration any facilities they have building. If they can take it in faster than the absorption schedule which is set forth in the contract, they will do so, which would reduce our cancellation cost. They would guarantee, however, that they would absorb the power at the rate of their schedule, which would result in this cancellation cost as a maximum. Do you see what I mean?

Mr. YATES. This is the maximum cancellation cost which would accrue to the AEC.

Mr. BOYER. That is right.

Mr. YATES. It may be less than that. Is that what you are saying?

Mr. BOYER. It may be less than that.

Mr. YATES. How much less could it possibly be?

Mr. DEAN. If there were a 100-percent absorption by the utility at the day of cancellation, there would be no obligation on the part of the Government. This is unlikely, because it would go in in degrees. I would probably be a 10- or 15- or 20-percent absorption over a period of years, climbing up.

Hypothetically and theoretically if you had a 100-percent absorption by the utilities system it could be nothing on the cost. Is that correct?

Mr. SAPIRIE. That is correct. The combined utilities we are dealing with have a combined capacity of better than 15 million kilowatts. The normal incremental growth per year for a system of that size would be approximately 1 million kilowatts per year. On that basis it would take at best 2 years in which to absorb our capacity.

However, there may be some part of that incremental growth which would be so far away from the location of these plants that it would not be practicable to displace that intended growth with this capacity.

Mr. YATES. Why should the AEC not have an option to purchase those facilities at a reasonable cost based on investment, rather than just to pay the cancellation costs?

Mr. BOYER. Well, I do not know that we have ever asked them.

Mr. SAPIRIE. We have discussed this problem with them.

Mr. YATES. Presumably you are paying $277 million for cancellation costs for a group of facilities which it is calculated will cost $400 million; is that correct?

Mr. SAPIRIE. No, sir. The $277 million includes the Oak Ridge and Paducah obligation as well as the obligation for the third site. The $220 million shown for the third site is the maximum obligation which would have to be made in order to permit us to enter into the contract.

Mr. YATES. Would my question be correct, then, if I stated that instead of $277 million it would be $220 million?

Mr. SAPIRIE. $220 million would be the maximum that we must obligate, but it is very probable that the amount the Commission would pay would be considerably less than that.

Mr. YATES. It would depend upon the ability of the utilities to use the power for other customers in the area?

Mr. SAPIRIE. It would depend upon their ability to absorb that capacity. If it is in normal times that should not be over 2 or 3 years. If it happened during a depression it might be the entire length of time, requiring the full payment.

Mr. YATES. What is the date fixed for the payment of the cancellation cost?

Mr. SAPIRIE. These details have not been completely negotiated, but at the present time, as to the cancellation costs, our discussion would provide that the cancellation payments would be made annually to cover that part of the capacity which is not absorbed into the system.

Mr. YATES. Annually on what basis? How much would you pay annually?

Mr. SAPIRIE. Annually, based upon the demand charge for that portion of the capacity which is not absorbed into the system.

Mr. YATES. If you paid them a certain amount as a cancellation charge, would you have the opportunity of getting a repayment in the event they are able to use the power over a period of years?

Mr. SAPIRIE. As soon as they are able to use the power we no longer pay that part of the bill. If we are able to use the power during the period of cancellation, then the net cost to us for cancellation is zero.

Mr. YATES. My point is this: You are paying certain cancellation charges predicated upon the ability of the utilities to sell the energy in the surrounding area. As of a certain date it may be so much. It may be $200 million. What happens a year later or 2 years later, if they are able to sell some of that power? Would you be able to recover any portion of the cancellation charge?

Mr. SAPIRIE. We would not pay the full cancellation amount at the time of cancellation. We would pay each year the part of our power bill which covered the part of the power which was not absorbed by the companies into their own systems. We would pay our normal power bill less the part which they are able to absorb each year during the period of cancellation.

Mr. DEAN. Our power bill is roughly $55 million.

Mr. YATES. I can understand that. Do you have the cancellation fixed at a certain time, with the charge based on a certain time? Later on, as your requirements are reduced, or as you cut them off at a particular time, can the utilities go out and sell the power to other users? Nevertheless they will have received from the Government the amount agreed upon as cancellation costs. If this does not give them a double compensation, it is almost that much, because they will receive the very substantial cancellation charge from the Government and will also be able to retain their investment. Is that true?

Mr. DEAN. No, sir.

Mr. BOYER. Let me use a little different approach.

Our power bill is made up of two elements. There is a demand charge and a fuel charge. The demand charge takes care of those items which do not fluctuate with the amount of energy you take, such as the amortization on the investment, the taxes, and all those things, including the maintenance which has to be done. So what they say to us is:

"Here. We will absorb this power as rapidly as we can."

Mr. YATES. Yes.

Mr. BOYER. "But if we do not have a customer for it we will expect you to pay our stand-by charge, which is set up under the contract."

Now, then, they say:

"We will obligate ourselves, however, to absorb that power and relieve you of those stand-by charges on a certain schedule. That will be the maximum charge which you will have to pay, for whatever comes under that schedule. We will absorb it at least at that rate. If we can absorb it faster than that, your demand charge will go down accordingly."

Mr. YATES. How long is the contract you are making?

Mr. BOYER. 25 years.

Mr. YATES. 25 years?

Mr. BOYER. Twenty-five years is the term.

Mr. YATES. With an option to renew on the part of the Government?

Mr. BOYER. That is under discussion with them, as an option for a longer period.

Mr. YATES. How do you protect yourself at the end of that contract?

Mr. BOYER. As I say, that is under discussion with them.

Mr. YATES. I can see you shaking your head.

Mr. DEAN. I do not think you are going to be using it 25 years.

Mr. YATES. Is this just a temporary creation?

Mr. BOYER. Twenty-five years is not temporary.

Mr. YATES. Mr. Dean says that this will not be used for 25 years. How long will you be using it, Mr. Dean?

Mr. DEAN. I do not know the answer to that question, but I think the life of these plants, so far as the gaseous diffusion plants are concerned, is such that 25 years is pretty much a maximum life for them. Oak Ridge has been going 8 years.

Mr. YATES. What is the life of a plant? Why make a contract for 25 years, then?

Mr. BOYER. You mean a steam plant or a power plant?

Mr. YATES. You are talking about this gaseous diffusion plant, are you not?

Mr. DEAN. Yes.

Mr. YATES. What is the life of those plants? Why make a contract for 25 years if it is not going to last 25 years?

Mr. DEAN. I do not think we really know the life of the gaseous diffusion plants. The only one we have going is the Oak Ridge one, which has been going for 8 years. I was shaking my head at the period beyond 25 years.

Mr. BOYER. There is another reason, too, Mr. Yates. If you make a short contract, with no assurance and no guaranties, no indication of demand on the part of the Government for the power, your power price would be much higher.

Mr. YATES. My next question is this: Are you not premature in coming in with this justification if we do not know what the terms of our contract are going to be with the 15 utilities, with EEI and with TVA? On page 23 you have approximately $56 million set aside for the cancellation provisions for both the EEI and the TVA alone.

Mr. BOYER. Mr. Yates, the problem we are faced with, of course, is having the funds which will permit us to make contracts with these people. If we do not have obligational authority or language which permits us to have an exemption under the Antideficiency Act, we cannot make a long-time commitment with these people.

Mr. YATES. Frankly, I can see your problem in trying to get an obligation authority, so that you can proceed, but yet the fact remains that within the very near future, and possibly within a year, you are going to have a change of mind which will compel the Government to pay a certain amount of money and a sizable amount of money for cancellation costs; is that not true?

Mr. BOYER. Well, if you are asking the power companies to take on that responsibility, and you are the sole customer, they will not invest money nor will they be able to borrow money unless they have protection against that possibility. They are not going to take a risk of that type.

Mr. YATES. Well, I agree with that in principle, except for this: Why should the cancellation provision which you are requesting be for such a large sum of money?

Mr. BOYER. Well, when you are negotiating with a chap and he outlines the basis on which he will do business, then you meet that condition or you try to negotiate him to a lower figure.

Mr. YATES. That is true, except for this one point: That there are certain contingencies upon which these cancellation costs come into being; namely, the nonneed for the power at that time. Do you foresee the nonneed for the power in the immediate future?

Mr. BOYER. We do not.

Mr. YATES. Well, then, are you not telling this committee that there will be no such thing as a cancellation cost.

Mr. BOYER. We cannot predict what the Government will do in this regard.

Mr. THOMAS. Is your situation not roughly this: The Government is the banker and the utilities are furnishing the know-how, and you pay the costs lock, stock, and barrel?

Mr. BOYER. That is right.

Mr. THOMAS. You give him a piece of paper, and then he can take that piece of paper as his guaranty. That is all it is. The cancellation costs are all included. He can go to his bank and he can get the money to operate. In order to protect the taxpayers you are going to have to give him the piece of paper, or else he is not going to furnish the know-how.

Mr. BOYER. That is right.

Mr. DEAN. It is, frankly, a no-risk contract, Mr. Chairman.

Mr. THOMAS. Of course it is. You are furnishing the money and he is furnishing the know-how. Certainly you ought to protect the taxpayers, along with yourself, and this cancellation clause is necessary or else his banker is not going to loan him any money. You certainly ought to write a provision in there to take it over lock, stock, and barrel, or give you an option to do it.

Mr. YATES. That is correct.

Mr. THOMAS. You are furnishing the money, and he is furnishing the know-how.

Mr. YATES. They are entitled to protection, but I think the American taxpayer and the Government are entitled to protection as well.

Mr. DEAN. I have a letter here on this subject, Mr. Chairman, if you would care to put it in the record.

Mr. GORE. That will be inserted in the record at this point.

(The letter is as follows:)

TENNESSEE VALLEY AUTHORITY,
Chattanooga, Tenn., May 23, 1952.

Mr. S. R. SAPIRIE,
Manager, Oak Ridge Operations,
United States Atomic Energy Commission, Oak Ridge, Tenn.

DEAR MR. SAPIRIE: In accordance with your request, we are writing to summarize briefly the need for the type of cancellation provisions we have discussed in connection with our arrangements for power supply.

TVA is required by law to carry on its power operations on a sound business basis. It is required by law to provide for regular amortization of its investment in power facilities and is expected to earn a fairly regular return on that investment. Requests for funds for additional power facilities are justified to Congress on the basis that the power is needed and that its sale would bring in revenues adequate to cover amortization and to earn a return of about 4 percent on the investment. Our contractual arrangements, therefore, are designed to provide the necessary revenues for that purpose. When generating capacity is used to supply power, the revenues from the sale of the power cover the earnings requirements imposed upon TVA. When a contract is canceled, it takes time to find another market. Cancellation provisions cover charges which should be borne by the customer over a reasonable period required by TVA in obtaining another market. Obviously, the problem of finding another user for a block of power is more difficult and takes longer if the quantities being relinquished are very large.

With the proposed expansion of AEC's power requirements, one-third of our system capacity at the end of 1955 will be devoted to supplying power to AEC. This means that if the use of power at your projects were to cease at that time, the other loads on the TVA system would have to increase 50 percent to absorb the supply.

The demand-charge component in our price to you for power covers costs which continue whether the capacity is used or not. Therefore, as indicated above, even if AEC suspends power use, TVA must arrange to continue to collect the demand charges for the capacity that has been provided, until other consumers are found who will take on the obligation through purchase of the power.

The period in which cancellation charges must be collected depends on the assumptions made as to the time required to find other markets. In view of the record of very rapid growth in use of TVA power, TVA is willing to make very optimistic assumptions as to the development of new markets in fixing limitations on AEC's obligations.

In order that AEC may know the extent of its obligations so that provisions can be made to meet them, it is desirable to establish a schedule for reduction in the contract demands following notice of cancellation. However, it is also desirable to permit somewhat more rapid reduction in the contract demand, if favorable circumstances should make that possible for TVA, and to recognize that the schedules probably can be modified to advanatge by agreement when the time comes.

You understand, of course, that the form of cancellation charge which has been suggested would not require any payment from AEC for capacity it did not use if it tapered off its load over the period of years required for the absorption by other TVA customers of the capacity contracted for by AEC. Cancellation charges are payable only in the event of an abrupt reduction or termination of AEC operations.

Please let me know if you would like any additional or more detailed information.

Very truly yours,

TENNESSEE VALLEY AUTHORITY,
G. O. WESSENAUER, *Manager of Power.*

Mr. THOMAS. Of course, there is no excuse for giving the TVA $28 million as a cancellation cost, because that is all John Public's money to start with.

Mr. YATES. No comment?

Mr. BOYER. Do you want us to comment on that, Mr. Thomas?

Mr. THOMAS. You had better comment on it, or else it will not be in here.

Mr. BOYER. Well, the TVA, of course, tells us, as they have presumably told you, that they operate as a corporation by the direction of Congress. Therefore, they expect to do their business on the same basis as a corporation would by providing guaranties which would hold them harmless if there were a cancellation of the contract.

Now, as I pointed out to Mr. Yates, we can put in here either the dollars or we can put in the language which gives us an exemption under the Antideficiency Act and permits us to make a long-time contract. Unless there is either the money or the language we are not in a position to make a contract with these power companies.

Now, so far as the TVA is concerned, they have set the guaranty up as a condition. You have raised the question: Why does one Government agency have to guarantee another?

Mr. YATES. In the event of these facts coming into being, should not a legislative committee be apprised of the possible cancellation, so that we can at that time determine whether or not the cancellation costs should be provided for, or whether the Government should take the plants over? Why should it not be subject to the further action of Congress, rather than giving you this blank check?

Mr. BOYER. We probably would not get a contract with them if that were the case.

Mr. YATES. Well, I'm not so sure, but I think we have developed that enough. Do you want to reply to Mr. Thomas?

Mr. THOMAS. Go ahead. Let us finish.

PREOPERATIONAL TRAINING OF EMPLOYEES

Mr. YATES. All right. On page 15, at the top of the page, there is a 6-percent increase in costs attributable to preoperational training for employees, and so forth. What do you mean by "preoperational training" of employees? Who trains your employees for you?

Mr. BOYER. At the top of page 15?

Mr. YATES. Yes. What does that mean?

Mr. BOYER. Let us take Paducah, for example. We are putting in the operating personnel now, and are starting to build up the operating organization. They have to be trained.

Mr. YATES. Is this an organization out of the AEC, or out of your contractor?

Mr. BOYER. This is a contractor organization.

Mr. YATES. You are paying for the cost of training?

Mr. BOYER. Surely. Somebody has to pay for them.

Mr. YATES. And the contractor will not do it?

Mr. BOYER. No. He has a reimbursement contract.

WEAPONS PROGRAM

Mr. YATES. All right. The next question relates to weapons, for which an increase of 29 percent is requested. Why should that not be under the military budget?

Mr. DEAN. Could you give us the page, Mr. Yates, please?

Mr. YATES. Yes. It is on page 15.

Mr. DEAN. I am sorry.

Mr. YATES. Why could not some great portion of that be under the military budget?

Mr. BOYER. What we provide for in the weapons program is the portion of the weapons program which has to do with the nuclear portion, and the nonnuclear portion which goes with that. We schedule our weapons program and how it will be increased as a result of this expansion, and must necessarily provide facilities to take care of an expansion in our program. It is the same type of expenditure which we are carrying out today in the weapons program.

Mr. YATES. This is really a part of the military program, though; is it not?

Mr. BOYER. Well, where do you draw the line?

Mr. YATES. Yes.

Mr. BOYER. Today our prime job is to make weapons.

Mr. YATES. In the event that this expanded program is approved, what are the possibilities of its being used for peacetime purposes?

PEACETIME USES OF ATOMIC ENERGY

Mr. DEAN. Well, the fissionable material which you produce in the gaseous diffusion plants and in the piles can be taken out later and used as fuels for reactors. It has an unlimited half-life, virtually. It is something on the order of a 24,000-year half-life for plutonium, I

believe. There is no deterioration of the material. Consequently, if it is not exploded, it can be fabricated into rods for reactors.

We would hope that one of the days soon we will get reactors which could produce economical power, in which case you would use this material as the fuel element for those reactors.

Mr. YATES. Where do you go from there? You use them in the reactors. When you say that you put them into the reactors, what are the possibilities of using the reactors?

Mr. DEAN. For power.

Mr. YATES. For power of all kinds?

Mr. DEAN. For electric power.

LENGTH OF CONSTRUCTION PROGRAM

Mr. THOMAS. Gentlemen, let us see if we can get some of these tables in the record.

First, is this a 4- or 5-year program?

Mr. BOYER. You mean the length of it?

Mr. THOMAS. The construction, before you get into the operation.

Mr. BOYER. This program will run through 6 years, with expenditures ranging from $600 million in 1953 to an estimated $1,579,000,000 in 1954.

Mr. THOMAS. It will take 6 years to complete it in its entirety?

Mr. BOYER. There will be some expenditures after 1958. We estimate roughly $135 million.

Mr. THOMAS. When do you get into operation?

Mr. BOYER. There will be some benefit derived from some portions of the plant as early as 1955.

JUSTIFICATION OF BUDGET ESTIMATES

Mr. THOMAS. You have a program here with an estimated cost of $3,191,000,000. That is your best estimate as of today; is that correct?

Mr. DEAN. That is correct.

Mr. THOMAS. Your estimates are purely guesswork. They are not based upon engineering designs, plans, and specifications?

Mr. BOYER. Mr. Thomas, I do not think the word "guess-work" is correct. They are based upon our experience. They are projections or estimates; not engineering estimates, but estimates based upon our experience in these particular fields. It is better than guesswork, but it is not an engineering estimate. There is a distinction.

PRODUCTION FACILITIES

Mr. THOMAS. Your big money is for further expansion of production facilities, in the amount of $2,903,000,000. You show the source and fissionable materials for those facilities as $16 million, and your community facilities as $5 million. For your construction money that gives you about $2,924,000,000.

OPERATING EXPENSES

Then your operating cost is made up of several items here, for a total of $107,455,000.

Mr. BOYER. Right.

Mr. THOMAS. Source and fissionable materials, $19,950,000; weapons, $65,179,000; reactor development, $7,200,000; biology and medicine—is that $1.9 million?

Mr. BOYER. Physical research is $1.9 million. Biology and medicine is $1 million.

Mr. THOMAS. Program direction and administration, $3,775,000. That is your administrative cost, which you are going to require for the fiscal year 1953, for about 692 employees, as well as I recall?

Mr. BOYER. That is correct.

Mr. THOMAS. About 299 of them are in the District of Columbia, and the others are scattered all over your 19 installations; is that correct?

Mr. BOYER. That is correct. May I comment for a moment, Mr. Chairman?

Mr. THOMAS. Yes.

Mr. BOYER. In looking at these other requirements for 1953 we have set up there as the President's budget the budget as submitted. We have not asked for a reinstatement or a re-review of the $174 million which the House and the Senate cut from that bill. However, there is no money included in this other supplemental portion of this supplemental, to which you are now referring, which brings about the reinstatement of those funds. In other words, these differences which we show here are made necessary because of the expansion or because of the new and unforeseen requirements not seen at the time the fiscal year 1953 budget was presented.

Mr. THOMAS. Coupled with your program direction and administration, for your 692 employees, who are not construction employees, you have a security and background investigations of $8,451,000. How has that item been carried in the past?

Mr. BOYER. In the past the FBI took care of our investigations, and they budgeted for the money which was required to cover those investigations. Since the enactment of the law which requires the Civil Service Commission as well as the FBI to carry out investigations for us it is now necessary that we provide for those funds.

Mr. THOMAS. Is this a transferable item to be transferred to the Civil Service Commission?

Mr. MCCARTHY. It is a reimbursement to both the Civil Service Commission and the FBI, Mr. Chairman.

SECURITY INVESTIGATIONS

Mr. THOMAS. Is there any duplicating of money in the Civil Service Commission funds for this work?

Mr. MCCARTHY. No, sir. We understand not. We understand the Civil Service Commission has requested a working fund to provide the initial capital.

Mr. THOMAS. What will it cost you per capita to make the investigation? The FBI has been doing it for about $150.

Mr. BOYER. $195.

Mr. THOMAS. The Civil Service Commission says they will do it for about $205 or $210. Perhaps it will be $250.

Mr. BOYER. $195.

Mr. THOMAS. Is this estimate of $8,451,000 based upon that per capita cost of $200?

Mr. BOYER. $195, sir.

Mr. THOMAS. How many employees are you going to handle?

Mr. WALLER. On page 150 of the justifications, sir, there is a breakdown. The total is 79,197, with it being split; 30,887 to be conducted by the Federal Bureau of Investigation, at a unit cost of $149.68, and 48,310 to be conducted by the Civil Service Commission at a unit cost of $195 per investigation.

Mr. THOMAS. They must be your contractor employees as well as your administrative employees?

Mr. WALLER. Yes, sir. This figure of 114,197 includes the factor for the future employment of new people.

Mr. THOMAS. How many contractor employees are you going to have here?

Mr. WALLER. The contractor employees will run about 106,000.

Mr. THOMAS. Is there any objection to placing the tables on pages 3 and 4 in the record?

Mr. DEAN. No, sir.

(The information is as follows:)

Schedule of costs and obligations by activities

	Fiscal year 1953		
	In President's budget	Revised estimate	Difference
I. Further expansion of production facilities:			
Plant and equipment (obligations):			
Source and fissionable materials facilities		$2,903,000,000	$2,903,000,000
Weapons facilities		16,000,000	16,000,000
Community facilities		5,000,000	5,000,000
Total		2,924,000,000	2,924,000,000
II. Other requirements for 1953:			
Operating expenses:			
Accrued costs:			
Source and fissionable materials	$341,500,000	361,450,000	19,950,000
Weapons	228,000,000	293,179,000	65,179,000
Reactor development	92,400,000	99,600,000	7,200,000
Physical research	43,100,000	45,000,000	1,900,000
Biology and medicine	24,600,000	25,600,000	1,000,000
Community operations	2,800,000	2,800,000	
Program direction and administration	35,400,000	39,175,000	3,775,000
Security and background investigations	11,854,000	20,305,000	8,451,000
Total operating costs	779,654,000	887,109,000	107,455,000
Cost of reimbursable work	1,200,000	1,200,000	
Increase (+) or decrease (−) in:			
Stores inventory	3,202,000	5,340,000	2,138,000
Special reactor materials	5,561,000	5,561,000	
Other special materials	2,037,000	2,037,000	
Operating working capital	700,000	3,200,000	2,500,000
Operating unliquidated obligations	22,200,000	82,505,000	60,305,000
Total obligations for operations	814,554,000	986,952,000	172,398,000
Plant and equipment:			
Obligations:			
Source and fissionable materials facilities	311,400,000	342,773,000	31,373,000
Weapons facilities	55,000,000	104,342,000	49,342,000
Reactor development facilities	44,100,000	55,250,000	11,150,000
Physical research facilities	5,985,000	6,835,000	850,000
Biology and medicine facilities	515,000	515,000	
Community facilities	5,500,000	5,500,000	
Equipment not included in construction projects	31,000,000	32,887,000	1,887,000
Total obligations for plant and equipment	453,500,000	548,102,000	94,602,000
Total obligations for other requirements for 1953	1,268,054,000	1,535,054,000	267,000,000
Grand total obligations	1,268,054,000	4,459,054,000	3,191,000,000

Mr. BOYER. May I make one further comment in that connection, Mr. Thomas?

Mr. THOMAS. Yes.

Mr. BOYER. While we have asked for no reinstatement of funds for the amounts cut out by the House and Senate in our base bill, we are requesting that our program direction and administration ceiling be allowed here, so that to the extent that we can make any funds available——

Mr. THOMAS. We are going to your language in a minute, Mr. Boyer.

Mr. BOYER. Fine.

Mr. THOMAS. We will take that up with you.

Mr. BOYER. Yes, sir.

UNLIQUIDATED OBLIGATIONS

Mr. THOMAS. What is this unliquidated obligations here on your operating cost, $60,305,000?

Mr. MCCARTHY. This provides obligational authority for this year, Mr. Chairman, to fund our operating contracts for next year and to provide for obligation under the new contracts which will come under the expansion program. There is a breakout of that under the table for unliquidated obligations by contractor.

PLANT AND EQUIPMENT

Mr. THOMAS. You have plant and equipment here to the tune of about $94 million. You have source and fissionable materials facilities, weapons facilities, reactor development facilities. You break this down and set it out separately from your construction. In truth and in fact it is construction money, is it not?

Mr. MCCARTHY. That is correct.

Mr. BOYER. That is done, Mr. Thomas, for the purpose of showing the supplemental items as not a part of the expansion. These items here on page 4 are set out to show the supplemental requirements we have for plant and equipment items, not brought about by the expansion itself.

Mr. THOMAS. Why were these items not in your regular bill?

Mr. BOYER. They were not foreseen at the time the regular bill was presented, sir. There are some very important ones in there. Could we go off the record a moment?

Mr. THOMAS. All right.

(Discussion off the record.)

Mr. THOMAS. When did you make up these estimates on the supplemental for your plant and equipment here?

Mr. MCCARTHY. We started on these in March, Mr. Chairman, developing the estimates and the requirements which have arisen since the submission of the regular 1953 budget. At that time it was proposed that these might come up as a 1952 supplemental. In the discussions with the Bureau of the Budget, since these were coming along with the expansion program, it was determined by the Bureau that they should be sent up as a 1953 requirement.

SCHEDULE OF OBLIGATIONS

Mr. THOMAS. We shall insert in the record at this point page 6 of the justifications, if there is no objection. I see no objection to it, for it is a breakdown of your other obligations.

(The information is as follows:)

Additional appropriations, fiscal year 1953—Schedule of obligations by object class

		Fiscal year 1953		
		In President's budget	Revised estimate	Difference
	SUMMARY OF PERSONAL SERVICES			
	Total number of permanent positions	7,505	8,197	692
	Full-time equivalent of all other positions	37	39.5	2.5
	Average number of all employees	7,140	7,667.2	527.2
	Personal service obligations:			
	Permanent positions	$36,076,416	$39,157,777	$3,081,361
	Part-time and temporary positions	268,445	291,945	23,500
	Regular pay in excess of 52-week base	138,755	150,596	11,841
	Payment above basic rates	2,144,583	2,180,540	35,957
	Payment to other agencies for reimbursable details	7,400	10,400	3,000
	Total personal service obligations	38,635,599	41,791,258	3,155,659
	DIRECT OBLIGATIONS			
01	Personal services	38,635,599	41,791,258	3,155,659
02	Travel	3,345,927	3,657,647	311,720
03	Transportation of things	1,407,499	3,508,426	2,100,927
04	Communication services	2,134,970	2,490,170	355,200
05	Rents and utilities	55,616,911	56,538,011	921,100
06	Printing and reproduction	399,920	430,200	30,280
07	Other contractual services	592,401,652	747,278,516	154,876,864
	Services performed by other agencies	11,916,894	20,367,894	8,451,000
08	Supplies and materials	107,077,732	109,265,802	2,188,070
09	Equipment	31,000,000	32,887,000	1,887,000
10	Lands and structures	422,500,000	3,439,215,000	3,016,715,000
11	Grants, subsidies, and contributions	200,000	200,000	
13	Refunds, awards, and indemnities	10,500	10,500	
15	Taxes and assessments	106,396	113,576	7,180
	Unvouchered	100,000	100,000	
	Total direct obligations	1,266,854,000	4,457,854,000	3,191,000,000
	OBLIGATIONS PAYABLE OUT OF REIMBURSEMENTS FROM OTHER ACCOUNTS			
07	Other contractual services	1,200,000	1,200,000	
	Total obligations	1,268,054,000	4,459,054,000	3,191,000,000

Mr. THOMAS. Where under these other obligations is this $94 million supplement included? I see the total is all the same, but I do not see the $94 million.

Mr. MCCARTHY. In the object class breakdown, Mr. Chairman.

Mr. THOMAS. Yes.

Mr. MCCARTHY. It is included under "Lands and structures"; $94 million for plant and equipment.

Mr. THOMAS. It is included in No. 10?

Mr. MCCARTHY. That is correct, sir.

Mr. THOMAS. What items do you have in your "other contractual services," 07, in the amount of $154 million plus?

Mr. MCCARTHY. These are the amounts which would be put under our operating contracts, Mr. Chairman. The additional plant and equipment starts on page 168. Those are the $94 million items.

PERSONAL SERVICES

Mr. THOMAS. Is there any objection to placing pages 7 and 8 of the justifications in the record, which show the breakdown and allocation of personnel?

Mr. DEAN. No, sir.

(The information is as follows:)

AEC direct employment by area—distributed between program direction and administration and other programs

Area	Number of positions		
	President's budget	Revised estimate	Difference
Grand total	7,505	8,197	692
Program direction and administration	5,332	6,001	669
Other programs	2,173	2,196	23
Program direction and administration:			
Raw materials field:			
Colorado	79	90	11
Florida		8	8
New York	457	485	28
Brookhaven	21	21	
Hanford	469	516	47
Oak Ridge:			
Oak Ridge office	680	716	36
Paducah	100	118	18
Site 3		162	162
Dayton	20	20	
Savannah River	358	378	20
San Francisco	191	191	
Santa Fe (includes Sandia)	816	860	44
Idaho	179	202	23
Chicago	225	225	
Lockland	38	38	
Ames	12	12	
Berkeley	47	47	
Pittsburgh	42	42	
Schenectady	67	67	
Washington headquarters and extensions	1,531	1,803	272
Total, program direction and administration	5,332	6,001	669
Other programs:			
Raw materials, field:			
Colorado	13	13	0
Exploration and foreign procurement (New York)	241	241	0
New York	113	113	0
Hanford	51	51	0
Oak Ridge office	330	330	0
Sante Fe (includes Sandia)	1,061	1,084	23
Idaho	343	343	0
Chicago	21	21	0
Total, other programs	2,173	2,196	23

PLANT AND EQUIPMENT

Mr. THOMAS. Your plant and equipment breakdown, as well as I remember it, starts on page 27.

Mr. MCCARTHY. For the expansion program, Mr. Chairman.

Mr. THOMAS. Yes. Is there any objection to inserting page 29 in the record?

Mr. DEAN. Yes, sir.

(Discussion off the record.)

Mr. BOYER. We have at no place made reference to the fact that this expansion resulted in———increased plutonium and———increase in U-235 production.

Mr. DEAN. That is the only thing on the page.

Mr. BOYER. Is that the only thing?

Mr. MCCARTHY. That is correct, sir.

Mr. THOMAS. Why not insert the table showing the figures for the fiscal years 1953 through 1956, and showing the dollar amount?

Mr. BOYER. I would see no objection to that.

(The information is as follows:)

The total estimated cost of additional fissionable material facilities required for the expansion program is $3,110,400,000. The present estimate includes $2,841,000,000 of this amount, leaving a balance of $269,400,000 to be requested in future years. The table below shows the rate at which construction costs are scheduled to be incurred by fiscal years:

Fiscal year 1953	$592,000,000
Fiscal year 1954	1,443,200,000
Fiscal year 1955	897,000,000
Fiscal year 1956	161,200,000
After fiscal year 1956	17,000,000

OAK RIDGE

Mr. THOMAS. As to the expenditure of this money, so far as your big program is concerned, there will be $456 million, roughly, at Oak Ridge; is that correct?

Mr. BOYER. That is correct. The total estimated cost there is——

Mr. THOMAS. $456,100,000?

Mr. MCCARTHY. Yes, sir.

Mr. THOMAS. How much money are you saving now by putting all your eggs in one basket, and further expanding your facilities so that if you get hit once it will all go up together?

Everybody talks about breaking it down and scattering it out throughout the country, but when you get down to the actual fact of the matter, you go back to the same old spot.

Mr. DEAN. We are going to a new site in connection with gaseous diffusion.

Mr. THOMAS. How much are you going to save by going in and expanding this facility at Oak Ridge?

Mr. BOYER. We have considered the possibility of going to a second gaseous diffusion site, and a rough approximation of the added cost would be something like $250 million to $300 million.

Mr. THOMAS. In excess of this $456 million?

Mr. BOYER. Of the $456 million and the other item for Paducah.

PADUCAH

Mr. THOMAS. Well, now, the next item here is for Paducah, 450,600,000. How much are you saving here by adding there?

Mr. BOYER. That figure I quoted of $250 million to $300 million would apply to not going to the existing sites, but going to new sites.

Mr. DEAN. It is from $125 million to $150 million for each.

Mr. BOYER. It is of that order of magnitude.

HANFORD

Mr. THOMAS. You are spending $346 million at Hanford. Are you saving any money by going back there?

Mr. BOYER. Yes, indeed.

Mr. THOMAS. How much?

Mr. BOYER. If we were to go to a new reactor site, as I outlined before, and put in the smaller reactor that we had previously considered, the cost there was something like a billion dollars additional.

SAVANNAH RIVER

Mr. THOMAS. You are going back into Savannah River to spend $167 million more there. Are you saving any money there?

Mr. BOYER. The figure I mentioned of roughly a billion dollars took into consideration both Savannah River and Hanford, and not going to a new site.

COMPARATIVE COST OF COMBINING FACILITIES AT A NEW SITE

Mr. THOMAS. Could you save any money by combining all of these in a brand-new site?

Mr. BOYER. It is our opinion that going to new sites adds to your cost, because you have to bring in the supporting facilities. You have chemical separations. You have power facilities. All those things would have to be duplicated, as well as your administrative organization. We prefer to avoid going to new sites wherever possible.

Mr. THOMAS. Now, you have a new location yet to be determined here. Your estimate is that it will cost $1,197,350,000. Could you not save some money by combining all of these units you have scattered around now in several different places?

Mr. DEAN. You could not physically move them, Mr. Thomas. I think that is the answer.

Mr. THOMAS. Out of this $1,197,000,000 you have set out another item of $366,000,000.

POWER FACILITIES

The present budget estimate is $220 million for power facilities. Is that in addition to the cost of the power facilities for which you have to pay at the new site?

Mr. DEAN. I am not sure I understand the question.

Mr. THOMAS. How much are you going to pay for power facilities at your new site?

Mr. DEAN. Other than transmission lines, we would expect to contract for the power at the new site. That is the transmission lines within the boundary, I believe.

Mr. COOK. Within the area.

Mr. BOYER. That is right.

Mr. THOMAS. Are you not financing any expansion of the power facilities there to take care of your new factory, or whatever you want to call it?

Mr. BOYER. This $220 million is put in to provide funds for the Commission, should we be unable to contract with private power companies for supplying the power to that plant.

Mr. THOMAS. What is the $220 million for? Is that for construction of power facilities?

Mr. BOYER. That is correct; if we are unable to make a contract with the private companies. If we are able to make a contract with

the private companies, we would expect to use a portion of this as covering our obligational authority for the cancellation cost.

Mr. THOMAS. That is in addition to the $1.2 billion for the construction cost of the facilities themselves?

Mr. BOYER. Is that not in that figure?

Mr. MCCARTHY. No, sir; that is set out separately.

Mr. BOYER. It is?

Mr. MCCARTHY. That is correct, Mr. Chairman. It is in addition.

Mr. THOMAS. Your power facility is one of your big items of cost, then?

Mr. BOYER. That is correct. We would estimate that the power plant, if we build it, would cost $360 million, for supplying this 1.8 million kilowatts for the new site.

PEACETIME USES FOR THE POWER

Mr. THOMAS. What amount of consideration has the Commission given, when it comes to construction of these new facilities, as to peacetime uses of the utilities, after the Government should finish with them, if you do finish with them, in order to convert them into some other productive use?

Mr. BOYER. You mean the gaseous diffusion plant itself, or the power plant portion?

Mr. THOMAS. All of it. Does it have any utility other than for the specific purpose for which it was built?

Mr. BOYER. The simplest one, of course, to discuss, is the power facility. One of the considerations involved was the capability of the area to absorb the power, the capability of the power systems to absorb the power should the contract be canceled. So far as giving consideration to the utilization of the gaseous diffusion plants——

Mr. THOMAS. I am not referring so much to the area. To what utility can you put the installation should you abandon it?

Mr. BOYER. We have given no thought to the utilization of this plant for other purposes.

Mr. THOMAS. Mr. Charles Wilson advises me that he urged the Commission and he urged the Joint Chiefs of Staff and every other governmental agency which had anything to do with locating these plants to locate them in spots where, if, as, and when, the Government had no further use for them, certainly the taxpayers would not have a dead horse on their hands, but would have something with some peacetime utility, such as a use for a fertilizer plant. There were perhaps a dozen things they could be used for, where there would be a useful purpose. Has the Commission given consideration to that?

Mr. DEAN. That would be true when it comes to the electric power. It is not true of the gaseous diffusion plant, except for the concrete building itself.

Mr. THOMAS, The machinery in it would have no other useful purpose?

Mr. DEAN. No, sir.

PLANT AND EQUIPMENT

Mr. THOMAS. On your construction money here, which is some $2 billion plus, what part of it goes into the plant and what part of it goes into equipment? Building the building is one thing, and equipping

it is something else. How do you break down this item of $2,924,000,000 for the construction money as between the building and the equipment which goes into it?

Mr. SAPIRIE. I can give you some typical figures on that. For the Oak Ridge expansion, out of the total on the order of $433 million for the gaseous diffusion plant, the building structure and building services total $50,475,000.

PROPOSAL TO REQUIRE AWARD OF CONTRACTS ON A COMPETITIVE BASIS

Mr. THOMAS. Out of this entire construction program I presume you will have several hundred different units of buildings. It takes very little imagination for you as witnesses, considering the questions which have been asked, to figure out what the committee has in mind.

The committee has in mind two things: No. 1 is to require you by law to let all your contracts and your subcontracts—and that means all of them—on open competitive bidding; and that means you are going to have to submit plans and specifications before and not afterward. No. 2 is that there will be another limitation which will require you not to start any one of these 200 or 300 construction projects unless you have had a budget estimate and you have the money with which to complete it. What that will do is that it will prevent you from leapfrogging and changing your plans and specifications, and doing away with something and coming up with something else.

We have done that with the Veterans' Administration, which has several thousand units, and we went one step further with the Veterans' Administration and put in a limitation on the use of the funds, so that they could not expand or alter or materially change one of these installations if, in the foreseeable future, by the use of ordinary business judgment, they would later abandon or destroy it.

How would these limitations affect this program?

Mr. BOYER. Well, Mr. Thomas——

Mr. THOMAS. First, it is going to cause you to do a lot of advance planning, which you have never done; certainly. However, by doing that advance planning you are going to cut down on your construction cost anywhere from 15 to 25 percent.

Mr. BOYER. It would be my opinion that if that first rider goes in, the realization of production from this expansion will be delayed anywhere from 24 to 36 months.

Mr. THOMAS. I cannot understand how in the world you can say that with any degree of accuracy, when you have du Pont down here with 2,500 engineers, and they are working on the plans as they go along, changing this and changing that. They cannot be at the most over 2 or 3 weeks ahead of the hounds, with the working crews. If you took that same amount of men, or a smaller amount of men, and worked out those details in advance and handed them over to a contractor and said, "There they are," you would not be losing time; but you would be saving time.

Mr. DEAN. The difference is that at du Pont you are building while they are designing. You have been building at Savannah River site for almost a year and a half, and still the design is only 55-percent complete. This means you could not have started the construction at Savannah River for another year under this rider.

Mr. THOMAS. Why start until you get your plans ready?

Mr. DEAN. We will have it finished by the time your rider would let it start. We will have the Savannah River project finished by the time your rider would let it start. If the 2 years does not mean anything, that is another thing.

I would not come up here and argue for this expansion program at all if the first rider were applied to it. I would not even try to, because you simply would not get the job done.

Mr. THOMAS. Which one is the "first rider"?

Mr. DEAN. If I understood it correctly, the first rider is the one which would require every contract to be let on a lump sum, unless I misunderstood.

Mr. THOMAS. That is correct. I just wanted to be sure you differentiated between the two limitations.

Mr. DEAN. The first one is the one which would trouble me.

Mr. THOMAS. It would tie you up how long?

Mr. DEAN. I do not think I would even come up and ask for an expansion program, because what you are buying here is time. You are saving 5 years for the target date which has been given to us. If it is going to take 2 years, we will have realized a good portion of it. It will take at least 2 years.

Mr. THOMAS. Why is it that you can work and do the job just as fast as you plan as you go along, rather than to plan in advance? That is what I do not see.

Mr. BOYER. You have telescoped the two, Mr. Thomas.

Mr. THOMAS. You have what?

Mr. BOYER. You have telescoped the two. You are doing the design and the construction as you proceed. You can lay out the foundations, and then you can work up the steelwork. You can put your piping in. You can keep building those things as the designs keep coming along.

That has been found to be true in private industry, just the same as we have found it to be true here.

You made reference to the Veterans' Administration.

Mr. THOMAS. What about the equipment which goes in there? You are not going to have your equipment in less than 2 or 3 years; are you? You are going to have your building long before you have your equipment.

Mr. DEAN. No. It is all timed.

Mr. THOMAS. No?

Mr. BOYER. No, indeed. We start construction on the equipment just as fast on those critical items. We will start getting the steel allocated to us, and get our tonnage in the mills. Then they will fabricate it, and give them designs so that they can fabricate that into finished structures, and finished elements.

Mr. THOMAS. Where are the designs and specifications which the fabricating company is going to use?

Mr. BOYER. Those are being developed as the steel is being rolled.

Mr. THOMAS. You send them a plan Tuesday morning for the work they are going to do Wednesday; is that right?

Mr. BOYER. We have almost done that in some of the cases, so far as the Savannah River job is concerned.

Mr. DEAN. At Paducah, sir; as soon as a unit is finished at Paducah the machinery moves in. As soon as the machinery moves in, the process piping is put in to connect them up.

Mr. THOMAS. How much do you figure you have had to pay in extra cost to get these made that way, rather than to furnish plans and specifications in advance? How much of a "scare price" do you think General Motors or General Electric or somebody else puts in for that?

Mr. BOYER. I do not know whether we can get that.

Mr. COOK. They do not put any "scare price" in. There is competition on procurement of our major equipment items. There is no "scare price."

Mr. THOMAS. There is competition? You let them bid on it?

Mr. COOK. We take proposals on our equipment items and award them to the lowest responsible bidder.

Mr. THOMAS. Do you give them plans and specifications to bid on?

Mr. COOK. Well, on all of these equipment items you are not required to have plans and specifications. You have a functional type of specifications, which you can use in soliciting proposals. On some of the transformers, switch gear, and other things, requiring long-term delivery, it is primarily a catalog item. You do not need plans, but you do need specifications.

Mr. THOMAS. Then you get competitive bidding on that?

Mr. COOK. Yes, sir; we do.

Mr. THOMAS. That limitation would not hurt you a bit, under that statement.

Mr. BOYER. But the broad one you put in would.

Mr. COOK. It would hurt us to this extent, sir: In order to do work on a lump-sum basis, if you really want to get a competitive proposal, you have to furnish complete plans and specifications so that the contractors you are soliciting proposals from can actually make material and equipment take-offs and arrive at a lump-sum price. Before you can get the plans and specifications in a condition to issue invitations and receive bids and make an analysis and award is where you lose your time, because the procurement then cannot begin until after the contract has been awarded.

Mr. BOYER. I would like to make it very clear, Mr. Thomas, you are here talking about process equipment of a very high degree of complexity. It is probably as complex and complicated a type of process equipment as there is in industry any place in the country. You cannot apply the same type of contractual approach to that as you do to something else if you want to make speed, such as you could on a hospital or something like that.

For example, let us take the Veterans' Administration, where they have time and time is not of the essence. As I pointed out yesterday, in the petroleum business they have found it necessary to go to the cost-plus-fixed-fee approach in order to save time in many, many instances where it is important that the capacity be expanded. It is not a device which is used alone by the Atomic Energy Commission. In those phases of industry where there is a complexity of design approaching what we have in the Atomic Energy Commission you will find the same practices used. That provision would place a burden upon the Commission which would be insurmountable to meet.

Mr. THOMAS. Where is the time element here? It is going to take 6 years to get this general plant. If the world is going to come to an end without this, at some place somebody has certainly been derelict in his duty in the last 10 years for not coming up with this over-all

plan. The Congress and the President and maybe the Atomic Energy Commission have been derelict for the last 10 years, for we have lost 10 years.

Mr. DEAN. Mr. Chairman, much of this comes on-stream a lot sooner than the period you gave. We will be getting some pay-off in 1954.

Mr. COOK. This chart shows a schedule of the three phases of the program for Oak Ridge, Paducah, and site X, showing, for example where the first building goes on-stream at Oak Ridge and where the last building goes on-stream. This [indicating] is the sequence and the overlapping and the operation of the plant. Those schedules are based upon our ability to procure and have delivered major equipment items which go into the plant.

This [indicating] shows the schedule of delivery of four different types of equipment which we will install in the plant. It shows how, under a cost-plus-fixed-fee type of prime contract, even though the procurement is done on a unit price or a lump-sum basis, we can gain time by getting procurement started prior to completion of detailed plans; which would allow us to make an integrated compressed construction schedule in the earliest possible operation.

LABOR REQUIREMENTS

Mr. THOMAS. How much labor, in terms of man-years, is it going to take to do this construction work in its entirety? This is not only for your plant facilities, but for your equipment also.

Mr. COOK. The peak manpower requirements at the third site will be approximately 33,000. The peak manpower requirements at Oak Ridge would be approximately 8,500. At Paducah we will come down from the 20,000 we are at now and level off at about 9,000. At Hanford our present force on the present construction is about 2,400. On the construction at Hanford we will go up to a peak of about 11,000. On the Savannah River project, the peak there will level out.

Mr. THOMAS. What is the total for all your activities?

Mr. BOYER. It would be about 95,000 construction workers.

Mr. COOK. Yes.

Mr. THOMAS. What about the fabricators? What will be the employment load to fabricate the material which goes in there?

Mr. BOYER. We do not have an estimate on that.

Mr. THOMAS. Outside of your deficiency units here, on your $94 million, is this all set up for an expansion of your existing reactors and the other elements as one unit? Does it all dovetail at your new site and Savannah River and everything? In other words, it is completed as a unit, because it would not function otherwise; is that right?

Mr. BOYER. Well, this has been laid out. There has been a coordination of the program so that as the various units come in they will start contributing to the production of fissionable material; if that answers your question.

Mr. THOMAS. What are you manufacturing at the third site?

Mr. BOYER. U–235 fissionable material, the same as at Oak Ridge and Paducah. In other words, they will do exactly the same job.

Mr. THOMAS. So the others will fit in. The new one is the new site?

Mr. BOYER. That is correct.

Mr. THOMAS. It is possible to eliminate the new site altogether without affecting the other part of the program?

Mr. DEAN. You could do it, if you just decided to cut down that amount of fissionable material.

Mr. COOK. If you eliminate the third site you reduce the capability of production of U–235 considerably.

Mr. BOYER. He recognizes that.

Mr. DEAN. Of course.

Mr. THOMAS. How much of a crippling effect would it have?

Mr. COOK. On the gaseous diffusion it would cut us by a percentage.

Mr. THOMAS. So for all practical purposes all of these different sites have been worked out as one operating unit?

Mr. COOK. It is completely integrated in operation, from the feed material chain through to the final product.

PRODUCTION

Mr. THOMAS. How much production are you going to get out of your present plant as compared with your intermediate production for the program which will not be completed for another 2 years? I noticed those charts yesterday on that.

(Discussion off the record.)

Mr. THOMAS. Have you picked your suppliers and contractors for your new site as well as your contractors for your additions to your old sites?

Mr. DEAN. No, sir.

WEAPONS PROGRAM

Mr. THOMAS. What is this weapons item for $65 million?

Mr. BOYER. General Fields, do you want to comment on that?

General FIELDS. This should be off the record.

(Discussion off the record.)

Mr. THOMAS. You have a full-scale weapons test here at a cost of $10 million?

General FIELDS. Yes, sir. That is part of the development program.

Mr. THOMAS. Have the armed services, or any branch, come up with any new ideas for you? It has been testified that the armed services will do their own procurement in the way of manufacture of new weapons. I presume they use that word "new" in contradistinction to the old bomb.

General FIELDS. Well, we produce the bombs that are used to go to the war reserve stockpile.

Mr. THOMAS. Yes.

General FIELDS. They do budget for certain training weapons and training equipment that they need in conjunction with their operational uses. They will also budget, of course, for all the missiles or rockets or anything of that sort to which an atomic warhead would be married. In this case we would produce the atomic warhead and they would produce the missile, or the carrier.

(Discussion off the record.)

Mr. BOYER. Mr. Thomas, as you know, we have written you a letter in which we have asked for some provision to give us relief under

a prohibition which was suggested by the House in the base 1953 bill, which said that there should be no construction started the estimate of which exceeded 35 percent of that appropriated, nor any construction started on projects which were not within the budget.

The Commission at times may be faced with emergencies which call for protection of property or protection of life, or we may have some developments in the weapons field which are of sufficient urgency that we should have some method for being able to take care of those construction requirements.

We have some examples. At Hanford at one time, at Richmond, we had to build a dike because of a threatened flood. We have had some fires. We had one at Oak Ridge and one at St. Louis, where it was necessary that replacement construction start immediately.

Therefore, we have suggested language in that letter to you which would give us the opportunity of first proceeding with work of less than $250,000, which would catch the smaller items that come up from time to time; and, second, would give us the opportunity of starting work when it was determined by the President that such work was necessary in the security and defense of the Nation. It is not something where we are trying to get in to give us more freedom, but there are situations which arise where they call for special treatment, particularly in the case when the Congress is not in session.

Mr. THOMAS. Thank you very much, gentlemen.

Mr. GORE. Thank you very much.

MONDAY, JUNE 16, 1952.

JOINT CHIEFS OF STAFF

ATOMIC ENERGY EXPANSION PROGRAM

WITNESSES

GEN. OMAR N. BRADLEY, CHAIRMAN OF THE JOINT CHIEFS OF STAFF

HON. ROBERT LeBARON, CHAIRMAN, MILITARY LIAISON COMMITTEE TO THE ATOMIC ENERGY COMMISSION; AND DEPUTY TO THE SECRETARY OF DEFENSE FOR ATOMIC ENERGY MATTERS

BRIG. GEN. HERBERT B. LOPER, CHIEF, ARMED FORCES SPECIAL WEAPONS PROJECT

BRIG. GEN. ROBERT S. MOORE, OFFICE, SECRETARY OF DEFENSE

PRESENT ALSO

GORDON DEAN, CHAIRMAN, ATOMIC ENERGY COMMISSION

THOMAS E. MURRAY, COMMISSIONER, ATOMIC ENERGY COMMISSION

Mr. GORE. The committee will come to order, please.

The committee is pleased to have with it this afternoon General of the Army Omar N. Bradley, accompanied by Mr. Robert LeBaron, the Chairman of the Military Liaison Committee to the Atomic Energy Commission; and Brig. Gen. Herbert B. Loper, the Chief of the Armed Forces special-weapons project.

General Bradley, the committee has under consideration a budget estimate and a request for the appropriation of the sum of $3,341,000,000 for the expansion of the atomic-energy program. The request is submitted to us in House Document No. 476 upon the basis of its necessity for national security and defense. The committee would be very pleased to have your estimate of the need and necessity for this appropriation.

GENERAL STATEMENT

General BRADLEY. Thank you, Mr. Chairman. I have two statements here, one which is classified, and one which is not classified, if you want to put it in the record.

Mr. GORE. We will put that statement in the record.

General BRADLEY. With your permission, Mr. Chairman, I should like to insert in the record an unclassified brief statement of the views of the Joint Chiefs of Staff and myself concerning the expansion of the Atomic Energy Commission facilities, the budget for which your committee now has under consideration.

We are well aware that this budget involves a very large sum of money and that implementation of the program will make heavy demands upon skilled labor and materials in short supply. This does not deter us from giving our whole-hearted support to the expansion program being considered. I am not here to justify a budget. I am here to justify an expansion program.

The basis for this program is the military requirements of the Armed Forces. The basis for these military requirements is the prime objective of our military preparedness program, which is, with the assistance of friendly nations, to avert military aggression, or if it should come, to defeat such aggression.

Today we are engaged in an accelerated program to increase our atomic strength with the hope of promoting an enduring peace. Atomic weapons, because of their complexity, and the numbers and complexity of the plants necessary to manufacture their components, are characteristically the products of a nation with a mature industrial position. However, our industrial potential might be outweighed by a nation with a lesser industrial capacity which can, with a disproportionate effort in the atomic field, equal or surpass our own production. Our effort must be more productive than that of our probable enemy; if this requires an all-out effort on our part, then this is what we must do. But this program is by no means an all-out one. It is the result of a carefully calculated analysis of the role of atomic weapons in augmenting our military capacity to meet our minimum requirements in the shortest practicable time.

We place enormous reliance on atomic weapons to provide for our national security. Our present plans are based upon maximum exploitation of these weapons. These plans include the end products of the proposed expansion program. Failure to get this program, in its entirety, under way at the earliest possible moment, will have a seriously crippling effect on military plans and capability.

ORIGINATION OF PROGRAM

Mr. THOMAS. Where did this expansion program originate, General? Did it originate with the Joint Chiefs of Staff?

Please bear in mind that we have another expansion program which is going on, which is, as a rough approximation, about 100 percent of those facilities which are in existence now. That program will not be completed in its entirety for approximately 22 to 24 months.

Mr. LEBARON. Longer than that; 1956, I believe.

General BRADLEY. Mr. Thomas, I do not know the exact origination.

Mr. THOMAS. That is the program which is in operation now and which is under construction now. Now you are going to superimpose upon that another program, which is going to take you 4 years to complete. Where did this new superimposition come from, General, if you know?

General BRADLEY. I do not know who put it down on paper first, but these expansion programs and the increased need for A bombs have been under discussion in the Joint Chiefs of Staff ever since I have been a member from 1948.

Mr. THOMAS. That is the information we want. In other words, it came out of the Joint Chiefs of Staff.

General BRADLEY. I say, I do not know whether they started it or not. I do not know whether the Atomic Energy Commission started it or who started it, but we all feel this way about it.

Mr. THOMAS. You know, we had some newspaper publicity about 6 months ago, which I will read into the record in a minute, which makes it look as though it were started by a nonmilitary man, judging from the newspaper publicity. I believe the Joint Chiefs of Staff did not get the slightest bit of credit for ever originating it, if they did.

General BRADLEY. Mr. Thomas, we have tried to figure our requirements. For the first couple of years after I was on the Joint Chiefs of Staff we put in our requirements more or less based on the approximate capabilities of the known ore. There was no use in coming up and saying: "Let us build the facilities to make X number of A bombs," if there were no more than facilities to make X bombs divided by 100. That would be foolish.

The ore problem has now been solved, so that now we are putting in for the actual requirements as we see the targets. As I say, I do not know who started this.

Mr. THOMAS. Surely we all recognize that the Atomic Energy Commission is only a service agency for the armed services. It should be. They are the production people who are producing for one purpose, and that is to satisfy the military requirements. It naturally follows, and we will assure it to be correct, that whatever expansion program comes from the Atomic Energy Commission must be the result of study and requests made by the Joint Chiefs of Staff or the proper unit inside the armed services.

(Discussion off the record.)

Mr. THOMAS. General, when I use the term "armed services" I use it in its all-inclusive sense. You may pinpoint it if you like.

What effort has the armed services made or is it making now in the development of new weapons? I use that in contradistinction to the old well-known atomic bomb. I do not have reference to the use of the hydrogen bomb. What has there been in the way of rockets or new types of guns or field pieces, and so forth? What has been done along that line by the armed services?

General BRADLEY. Off the record, please.

(Discussion off the record.)

Mr. THOMAS. So far this is pretty much of a guesswork program, and it cannot be anything else at this stage of the game. That is about the size of the matter; is it not?

General BRADLEY. Sir, I think we are beyond the guessing stage, I do not know what you mean. Guessing about what?

Mr. THOMAS. We are guessing as to whether or not you are going to be able to use this bomb or atomic energy in the field pieces, with artillery and mortars, and we are guessing whether you are going to be able to use it in flying and guided missiles, and certainly to some extent it is a guess about self-propulsion. It is pretty much of a guess up to that point, other than the bomb which we now have.

General BRADLEY. It has gone beyond the guessing stage, in our opinion. I do not think you would want to sit back and wait 5 or 6 years to perfect your final percentage of your experiment before you started doing some of this stuff, while you let the other people get ahead of you.

Mr. THOMAS. Of course, that raises another question. We all point very strongly to what Russia has. I had occasion to look into the civil-defense program the other day, and it was all based upon what Russia was going to do to us with the atomic bomb.

I am just wondering, since everybody else knows how many bombs Russia has, why some of the Members of Congress do not know. Then we would not have to do so much guessing. Everything is based upon what Russia has.

General BRADLEY. I suspect that all the figures you have seen about any figures on Russian production were as much a guess as you might make, Mr. Chairman.

Mr. THOMAS. That is right. That is my idea.

General BRADLEY. They are not accurate.

Mr. THOMAS. Of course not.

The other point is that you cannot take a chance. We know that Russia is going to have something and is working on something. Certainly you cannot sit down and let her demonstrate and prove to us that she does have something.

How much fissionable material are we going to get out of this expansion program which is under way now, and which will not be completed for another 2 years?

General BRADLEY. The chart shows the rate of that increase. I do not think you want to know the numbers.

Mr. LEBARON. This chart will show you the amount of fissionable material, for all practical purposes. This [indicating] is where we are here, and this [indicating] is where we are going in the present program.

Now, the present program will be completed at some place in here [indicating]. In other words, when you have a steady state condition here [indicating] and that tangent does not move up any more, so that we need everything that anybody has to do here [indicating], all out to produce just this part right through here [indicating]. What we are saying is that we must have this number of weapons [indicating], of fissionable material for the purpose of this discussion—since these are interchangeable expressions—and we do not want to wait until ———. So we will gain 5 years by putting this other program in now, which has to have this 3 or 4 years of lead time in order to begin to diverge from this [indicating] to produce this many [indicating].

Mr. THOMAS. How much guesswork is there in those figures? I am like Mr. Charles Wilson now. He told me he was not able to get any figures from anybody.

General LOPER. These are the Atomic Energy Commission figures.

Mr. THOMAS. As to how much this present expansion program was going to produce he could not get any figures, much less as to how much the projected program would produce, which will increase it from ——— to ——— percent in the next 5 years.

Mr. LEBARON. These are the Atomic Energy Commission figures, because they are the people who make the weapons. We do not get into the business of running their show. That is their show.

Mr. THOMAS. Yes, but you are going to have to use them, and you are supposed to know something about them, or you would not be over here.

Mr. LEBARON. That is right.

Mr. THOMAS. Are you coming over here as a military man now?

Mr. LEBARON. I am coming over here as a military man.

Mr. THOMAS. All right. You speak as a military man.

Mr. LEBARON. We are saying here, from the military standpoint, that on the basis of the forecasts of the Atomic Energy Commission and their production schedules, which will ultimately be proved out down here [indicating], when you get certain production which they can maintain from then on, assuming that the ore is available to do it, you run along on this curve [indicating].

The Joint Chiefs of Staff have said that this is the minimum number of weapons they need right now to really do their job, and that they would like, if all things were equal, to have those weapons over at this time [indicating].

They are ready to give to the extent of this amount of time, because this is as far as we can go, obviously. If we tried to expand on a broader base we would not really begin to get the benefits until this length of time here [indicating].

If we took a smaller base, the thing would flatten out. This is developed by our joint work on the same figures. We looked at the same figures but came up with separate conclusions.

Mr. THOMAS. General Bradley gave a very telling statement awhile ago, one which is by far the most effective I have listened to in 5 years, made by anybody, and it is quite simple. He said that about ——— planes were used, and he said that perhaps by the use of perhaps ——— or ——— planes, with the requisite number of supporting planes, and the use of this bomb, that they perhaps could have done the same job that those ——— planes did with the high explosive bombs we had at that time.

I am just wondering about that.

General BRADLEY. I think I might cite another example, sir, if I could leave it off the record.

Mr. THOMAS. Yes.

Mr. GORE. The other example was off the record, too.

(Discussion off the record.)

Mr. THOMAS. General, is that the basis of the stretch-out in the airplane production program?

General BRADLEY. No, sir.

Mr. THOMAS. What are we going to do with all of these planes if this atomic bomb is going to do all this work?

General BRADLEY. The trouble is that these other fellows have it, too. They are going to be hitting back. You may not have your requirement. You may lose all you have before you get there. You just cannot count on doing it, although I am frank to admit that I think you would have a great deal of trouble trying to figure out the number of planes to use tactically, rather than some of the other forces, because you do not know quite what they will do to you, so you do not dare take a chance on having only ——— planes to drop ——— bombs.

Mr. THOMAS. It all gets back to what Russia has, does it not?

General BRADLEY. Yes, sir.

Mr. THOMAS. We paint the picture every day. The horrible thing about it is that as black as we may paint it she could have twice the number of planes and twice the number of bombs we are giving her credit for. That is one possibility.

General BRADLEY. It is possible.

One thing which worries me about this is the fact that so many people are sort of shying off now on developing the H-bomb, for example. They say: "Well, we do not want to have anything to do with killing so many people."

Of course, we do not want it to kill people. We want it to knock out military targets. I assure you that there is not a target which is not a military target itself.

Mr. THOMAS. Of course, my guess is—which is no more than a guess—that neither side would drop the bomb. I am one of those who believe that if we were to have a war neither side would drop one. I think this situation is on all fours with the situation we faced with Hitler on the poison gas and bacteria. He had all the poison gas and bacteria that he needed, and we had it, too, and neither side used it.

I hope that will be the situation on the atomic bomb. Still, that is a chance you cannot take. You have to be ready. We were ready with the bacteria and the gas, too, were we not?

General BRADLEY. Yes, sir. I am afraid I cannot agree with you on that hope, that we will never have to use them, because I consider that the A-bomb will be in the nature of a conventional weapon, apparently more than you do. I think that will be true more than people guess. The A-bomb is nothing more than a great concentration of explosives. We do not hesitate to use TNT to destroy a target, and we do not hesitate to send over 1,000 planes with TNT to drop. What is the difference between that and sending over one plane with the A bomb?

Mr. THOMAS. One plane does as much as 100.

General BRADLEY. With the A-bombs you simply reduce the number of bombs which gives you the results. What is the difference? Should we make a distinction as between the people killed at Hiroshima with the A-bomb, and all of the people killed in Tokyo with the conventional bombs?

Mr. THOMAS. You did it all at one fell swoop, at Hiroshima.

General BRADLEY. I do not see why we cringe so just because it was an A-bomb instead of TNT or a fire bomb.

Mr. GORE. Would you say that the same thing would apply to a lesser degree with the use of gas?

General BRADLEY. Possibly.

Mr. THOMAS. Bacteria?

General BRADLEY. The gas use was by common consent. We did not want to use gas, either. If we started using gas in the last war, and if we had had to fight through it down there in the jungles, it would have been pretty tough. We do not want to see gas used, either. By mutual consent it was not used, to the advantage of both sides.

Mr. THOMAS. If the purpose of war is to kill people, why not use the atomic bomb, gas, bacteria, and everything else?

General BRADLEY. When you use bacteria you are not going after the military targets, necessarily. Then you are going after the population. The population might become a military target, but it is not normally what we consider to be a military target. We are talking about knocking out industry, communications centers, railroads, and things like that.

Mr. THOMAS. Of course, you cannot control exactly where you are going to drop it, with any too much precision. The pilot is up there, and somebody is shooting at him, and he may drop it any place.

General BRADLEY. Of course, somebody is going to get killed. There is no denying that.

Mr. GORE. General, you made a statement a few moments ago about the hydrogen bomb. I believe the statement was off the record, and I will take my question off the record.

(Discussion off the record.)

Mr. THOMAS. General, suppose that we do get into an all-out shooting war with Russia. Who is going to drop the first atomic bomb? Are we going to drop it?

General BRADLEY. The decision on when and where we drop the bomb is in higher authority.

Mr. THOMAS. I know; it is in the President. But he is going to come over to talk with you about it.

General BRADLEY. If you want my recommendation, I will give it off the record.

(Discussion off the record.)

Mr. THOMAS. Of course, Russia does not have any cities as big as New York, and they do not have any cities as close together as ours, and we would come out a little bit on the losing side, would we not?

General BRADLEY. No, sir.

Mr. THOMAS. We have more big cities, and they are closer together.

General BRADLEY. I do not think we would.

Mr. THOMAS. How are you going to escape it? Who has the greater number of big cities, and who has them the closest together? That is just a question of fact. Nobody can change the facts.

General BRADLEY. If we can maintain our superiority in numbers and methods of delivery, we hope to prevent a lot of that. You cannot prevent it all, of course.

Mr. GORE. General——

General BRADLEY. May I go on a little further?

Mr. GORE. Surely. Pardon me.

General BRADLEY. What difference does it make? If they want to use the A-bomb to destroy New York, they are going to do it anyway. The best thing is to have as many as you can, and go back and retaliate.

Mr. THOMAS. But who is going to start it? They might say they will not use it.

General BRADLEY. You know they would.

Mr. THOMAS. They did not use poison gas, and everybody had plenty of it. What is the difference between the A-bomb and poison gas and bacteria, if the ultimate object is to kill everybody you can?

General BRADLEY. No, sir. You missed my point awhile ago. We are not after killing people necessarily. We are after destroying factories, power plants, atomic-energy plants, tank factories, oil fields, and so forth.

Mr. THOMAS. I think we understand each other's viewpoint.

I have one further question about the armed services. I use that in the generic sense.

DEVELOPMENT OF DELIVERING VEHICLES

Are the armed services relying exclusively upon the Atomic Energy Commission to develop the atomic weapons? By that I mean the field pieces, the artillery pieces, and so forth and so on?

General BRADLEY. No, sir; we do not depend upon the Atomic Energy Commission for that.

Mr. THOMAS. What are the armed services doing in that field now?

General BRADLEY. Well, sir, General Loper or Mr. LeBaron, either one, can give you more up-to-date information on that than I can. I tried to get out there last month, and I could not make it because of some meeting I had to attend.

General LOPER. As to the delivery vehicles, that is the job of the armed services. The vehicle used in that sense means the thing which gets it to its target. The vehicle takes the bundle of atomic energy for explosion. That is the job of the armed services.

In the artillery we have gone so far as to develop the * * * which has already been proof-tested, for which the Atomic Energy Commission has provided ammunition.

In the guided missile field, * * * which will carry atomic warheads. Again, the Atomic Energy Commission provides the warheads.

These missiles are not designed to carry that warhead exclusively. They can be adapted and used for the high explosives or other munitions, if desired, but their primary warhead will be an atomic warhead.

General BRADLEY. Sir, are we going to get a chance to go over this transcript?

Mr. THOMAS. Surely. You will be the exclusive judge of it.

Mr. GORE. If you want to go off the record at any time, just say so.
General LOPER. This should be off the record.
Mr. THOMAS. All right.
(Discussion off the record.)

POTENTIAL SAVINGS IN DEFENSE COSTS

Mr. THOMAS. You gentlemen are making a very good case for some newspaper articles which appeared in the paper in September of 1951. This appears on page 5 of the hearings on the second supplemental appropriation bill for 1952, as follows:

> Several days ago there appeared an article in the Washington Post by Mr. Robert A. Albright, dated September 19, 1951, quoting from the Chairman of the Joint Congressional Atomic Energy Commission,

and the quote was:

> $6 billion invested annually in atomic weapons can grant us a reprieve from world war III.

We asked Chairman Dean of the Atomic Energy Commission if that were an accurate statement, and he is quoted on page 5 of the hearings as saying:

> That is a difficult one to answer.

He said:

> I would say this: If he thinks you can take $6 billion——

and there he went off the record, and I have forgotten what he said. Quoting some more from that same article, it says:

> At the same time $30 billion to $40 billion can be saved from the presently estimated $60 billion to $80 billion for defense costs which otherwise threaten to become the price of survival.

With the small number of planes and the small number of vehicles of delivery, does it follow that this statement is at some place reasonably correct; that you could sizably cut down your defense bill by building up your atomic stockpile, gentlemen?

Mr. LEBARON. Could I address myself to that question? I think, again, this ought to be off the record.

Mr. THOMAS. I believe we would like to have the general speak to it.

General BRADLEY. We can both answer it.

Mr. Thomas, the way of fighting in these days is changing so rapidly that I do not think anyone can be clairvoyant enough to know exactly what the answer to such a question is. All we can do is, with our knowledge and experience and what we know about these weapons, to try to probe along into the immediate future for our requirements.

We think that you are going to need air power. I am a strong believer in air power. Particularly if you are going to let us use the A-bomb you need air power. We want to do everything we can to increase our ability to deliver the A-bomb. We want to improve the planes, the guided missiles, the artillery and so on. We give a great deal of thought to the use of them tactically, and how to get them delivered tactically.

At the same time, you cannot just say: "All right; let us buy a few A-bombs and a few planes to carry that number of A-bombs," and wipe out all the rest of your defense. As was brought out here a while

ago, then you are not going to get a target, unless you have enough ground forces, for example, to make the fellow concentrate.

I have used the illustration several times that if you did not oppose them the Russians could walk across Europe at 100-yard intervals, and walk all the way to the Channel, and you would never get an A-bomb target. You cannot do away with ground forces completely. You cannot do away with your naval forces.

We hope that we fight this war somewhere else, and not here in the United States. If you want to fight it here in the United States, that is something else again.

Therefore, you are going to have to supply those troops which are overseas. We are also dependent on the rest of the world for a lot of strategic materials, which we have to get in here even during wartime, so that we have to guard our lines of communication.

What we have done is to the best of our ability that we have tried to figure out how we can make each of the services stronger, and give each of them a chance to do the mission which is assigned to it. We all realize that the Air Force is the one which has to have the greatest amount of boost in order to carry out its mission, which could be carried out if we have A-bombs, while the others could more or less stand still. But we feel certain you cannot do away with the rest of them, and do what some people say: "Let us buy a few planes and a few A-bombs and prevent war or win a war if it starts."

In my opinion, that is the best way in the world to start a war. I do not know whether I have answered your question or not.

Mr. THOMAS. I think so.

DIFFERENT TYPES OF ATOMIC WEAPONS

Mr. GORE. General, I have heard a number of questions raised about the feasibility of using atomic weapons in a field piece. There is the feeling abroad that the Army is spending a very large amount of money developing a way in which it can use the atomic weapon, though it might not necessarily be a way in which the atomic weapon could be used to the best advantage. I make no such charge, but I would like to have your opinion on that.

General BRADLEY. What we are trying to do is to develop means of delivery, all of which are complementary. It is true that you might say that you could deliver an A-bomb anywhere that an artillery piece can shoot it. That might be true, if it were there and were available all the time, and if the weather were such that you could get there, and there was no hostile opposition to keep it from getting there.

However, with an artillery piece you have, for example, great flexibility. When a fleeting target comes up you can hit it. If you have to get in touch with an airfield, and have to get the plane armed and off and all, the target might have disappeared; or you might meet with some opposition in the air, or there might be bad weather, or something else.

We are trying to develop all the deliverable means which are possible, so that they are all complementary, and that they all complement what we call the conventional weapons today. It just increases your capacity.

(Discussion off the record.)

Mr. GORE. There is a feeling involved, though it may be entirely unfounded, that once one of the forces has developed a weapon the

other forces must develop a competitive use, no matter what it costs.

General BRADLEY. A lot of people still try to stir up trouble between the services; and I assure you that that is not the reason we develop these weapons.

CONCENTRATION OF WORK

Mr. YATES. A question came to my mind this morning, as I listened to the presentation of this proposed expansion, as to whether it is advisable to keep expanding our plant at a particular location, rather than dispersing it.

General BRADLEY. Of course, from a military point of view, we are always in favor of the maximum dispersal. However, getting into that you get into a discussion which is more out of our field and more in the field of the Atomic Energy Commission. Mr. Dean could probably answer that question. You have to weigh your dispersal against where your power is available, where your labor is available, and many other factors.

Mr. YATES. They are taking labor into Savannah from all over the country, apparently. I have seen advertisements in Chicago. You are pulling labor in.

Mr. LEBARON. Water is the principal thing. It takes so darned much water that you are pretty much limited at these places. That has been one of the principal factors.

Mr. GORE. I have one more question and then I will be through, General. It may be a question which should be directed more properly to the Atomic Energy Commission.

HYDROGEN BOMB

You have spoken much about the hydrogen bomb and the importance to our security of its development. Is that involved in this expansion program which you are recommending?

General BRADLEY. I think that Mr. Dean could probably better answer that question. I understand that certain elements are in it.

Mr. DEAN. Certain elements are in it, but they are not large dollar amounts. The primary effort now is in the developmental phase, rather than the production phase. It is hard to make an allocation at this point.

Mr. GORE. So the Savannah plant, which was dubbed by the newspapers as the "hydrogen bomb plant," really is not?

Mr. DEAN. It is not primarily the hydrogen bomb plant. It is a dual-purpose plant.

Mr. GORE. If you develop the feasibility of the production there it could be converted to that purpose?

Mr. DEAN. That is very true.

Mr. ANDREWS. Is the same thing true of this new X plant?

Mr. DEAN. On some of it. Certainly the new designs of weapons are such that you would use a lot of material.

IMPORTANCE OF ATOMIC ENERGY EXPANSION

Mr. GORE. General, you come here as the Chairman of the Joint Chiefs of Staff, to recommend this as vital and necessary, in your opinion and in the opinion of the Chiefs of Staff, for the defense and security of the United States?

General BRADLEY. Yes, sir. We just do not think you can afford not to do it, sir, for the security of the United States.

Mr. THOMAS. I have one question. When you get the power developed, following the General's terminology, who is going to develop the carriers? Would it be the armed services, the Atomic Energy Commission, or who will do that, and when?

General BRADLEY. That is the job of the Armed Forces, to develop the various means of delivering the bomb.

Mr. LEBARON. Are you talking about power?

General BRADLEY. I believe you are talking about delivery, sir, are you not?

Mr. THOMAS. That is right. I am talking about delivery, whether it is by a field piece or by a flying missile, or what have you. That will be the job of the armed services?

General BRADLEY. Yes, sir.

PROPOSAL TO MAKE REDUCTIONS IN THE MILITARY BUDGET TO OFFSET THE COST OF ATOMIC ENERGY EXPANSION

Mr. YATES. Is there a possibility of a corresponding diminution in the requests for appropriations in the Armed Forces budget, if we do expand the atomic energy program in accordance with this present request?

General BRADLEY. I do not see any in the immediate future.

Mr. YATES. In other words, both of them have to go forward together?

General BRADLEY. You have to buy the means of delivery as well as buying the bomb itself.

Mr. ANDREWS. Off the record.

(Discussion off the record.)

NEED FOR ATOMIC EXPANSION AT THIS TIME

Mr. PHILLIPS. General, the essential function of this subcommittee is to figure out the amount of money which it is necessary to spend, and to recommend to the full committee, and then from the full committee to the Congress.

I want to make this general statement: There are two ways to destroy a nation. One is to destroy it by the bombs we are talking about; and the other is to destroy it by permitting its economic strength to be completely dissipated.

We have a request before us for $3,341,000,000 for an additional program for atomic development. The statement has been made in my hearing, on good authority, that this has been under consideration by the Atomic Energy Commission for some 4 or 5 months. Their original intent was to ask us for $5 billion. The Commission now asks us for $3,341,000,000.

We have had a minimum of evidence before this subcommittee to justify any recommendation at all on the money side. I am not referring to testimony as to the value of the bombs or the delivery of the bombs, but as to whether this should be $3.5 billion or whether it should be $2.5 billion or why you need it now as opposed to last March or next March. It seems to me that is the essential interest of this subcommittee, and that we should find something out about that.

Have you any estimate or have you any figures which would indicate to you why this should be $3,341,000,000?

General BRADLEY. The Atomic Energy Commission can answer that question. They are the ones who are in charge of construction of it, and of the production after they get it constructed.

Mr. PHILLIPS. Can you tell me why this has become such an urgent matter that it has to be brought up to the Congress within a couple of weeks before we recess for the summer? There has been no evidence presented to us which would indicate any sudden increase in Russia's preparation nor anything new which would indicate the urgency of this at this particular moment.

General BRADLEY. Well, as I have stated here earlier, for a while we based our military requirements on what we knew was within the capabilities to produce with the raw materials in sight. As I understand it, the raw-materials problem has been solved very largely, and there is much more of that in sight. I understand that there is enough of it in sight to use this productive capacity, and, therefore, having found that out, we say:

"Let us expand and use it and get these bombs as quickly as we can."

From a purely military point of view we would hate very much to see you put off until 1961 what we might obtain in 1960, or to put off until 1957 what we can attain in 1956. If you wait another year to give appropriations you delay your expansion by 1 year. We do not like to do that, from a military point of view.

PROPOSED TO MAKE REDUCTIONS IN THE MILITARY BUDGET TO OFFSET THE COST OF ATOMIC ENERGY EXPANSION

Mr. PHILLIPS. Then, if I accept your statement as to the urgency of the need, I come to this question: We gave the military arms of the services enough money in the fiscal year 1951 budget so that at the end of the year they had left over about $36 billion.

Then, for the fiscal year 1952 budget we gave them in round figures about $60 billion more, so that they entered the year, we will say, with $95 billion in the current year.

By the end of this year you will have left over, unspent and partially committed, probably about $70 billion. I, myself, think it will be much more than that, but that is a figure which has been used.

The new appropriation which is in the neighborhood of $50 billion will make it about $120 billion which you will have on the 1st of next month to spend. This is the point I am making, and I am very sincere: If this is as important as you say it is, why are not the Joint Chiefs of Staff recommending the use of money from this carry-over?

If you are thinking about the possibility of destroying the country internally as well as externally, why are you not saying that this $3,341,000,000 ought to come out of the $120 billion, because this request is more important than what you had originally planned to spend the $120 billion for?

After you work 20 years on appropriations, General, you do not get cynical, but sometimes you get a little skeptical. I always know that there are going to be Russian submarines seen off either the Pacific coast or the Atlantic coast just about the time the naval appropriation bill comes before the adjoining subcommittee, just as I know that the

people in the Indian Schools are always going to be notified they are about to be let off the payroll on the 1st of July, just at the time that the bill for the Department of Interior comes up.

Mr. GORE. Do not forget the flying saucers.

Mr. PHILLIPS. And the flying saucers appear at the proper time. I do not say that is deliberate; it is just coincidence.

Seriously, why is it that if this is as important as you have just now stated it is, we cannot take $3,341,000,000 out of the money you already have, and spend it, and then when we find out how much we have left over next year, if necessary, we will give you $3 billion more?

I have reasons for saying that. I have a strong suspicion that if we would go over there and dig into the inner recesses of the Pentagon we would still find some section devoting its time to the design of a muzzle-loading rifle. I do not think you ever stop anything from the past. I think you just keep adding new weapons on for the future. I think you ought to let off some of the old weapons which are not going to be so good.

I think, also, that we have had some very practical experience with how the Pentagon estimates. Now, there was a little matter, General, of $42 million, as you will remember, for electronics material, which the Air Force had to have. Actually, it cost $26 million. Do you see what I mean? That is what the Pentagon thought it was going to cost, and requested. They were sincere; but the actual cost was $26 million, when we paid the bill.

I could give you many illustrations. I could talk about how, just within the past few months, one of your Air Force installations abroad has been engaged in burying or otherwise disposing of several million dollars worth of weapons, delivered about a year ago, and which were left out of doors to rust and be destroyed. Now the present commandant is engaged in burying them so that they will be out of the way, I suppose, before any congressional committee gets over there this summer. That is several million dollars worth of material involved there.

I come back to a practical solution. With this knowledge and experience, why should we not tell you: "O. K. We accept your statement. We like you. We will take your word for anything that comes up here regarding policy. You should know that by now. But why should you not spend $3 billion out of the $120 billion you have already?"

General BRADLEY. Mr. Phillips, I should like to break my answer down into four parts. In the first place, I have nothing to do with making estimates or with procurement, so I cannot answer your question. Your law very carefully prescribed my duties, and there was nothing there which prescribed that I have any command over any services, so I deny any responsibility for burying any equipment.

Mr. PHILLIPS. Maybe that answer is sufficient in itself, without the other three.

General BRADLEY. The second point, so far as the sighting submarines, and so forth, is concerned, is that I have never told any committee of Congress anything that I did not believe to be the absolute truth.

Mr. PHILLIPS. It was in the newspapers; not from you.

General BRADLEY. So I deny any responsibility for submarines.

Mr. THOMAS. And flying saucers, too, General?

General BRADLEY. And flying saucers, too. I have never reported having seen one.

The third point is as to the $70 billion which is unexpended. I think very few people understand how long it takes to procure certain items. When we asked for that $70 billion in 1951 and 1952 it was to buy certain specific things. Of course, some of it went for pay and rations, and so forth, but the hardware we had to go out and contract for, and, as I understand it, by the 30th of this month all of that $70 billion will have been contracted for except some $300 million or $400 million which is necessary to hold back as a reserve to cover the changes in designs, and so forth, which you have to have. You have to hold about that much back.

Mr. PHILLIPS. You really do not think any of this is available?

General BRADLEY. We have already contracted for that $70 billion worth, and I do not think you want to pay for this until we get it.

Mr. PHILLIPS. No.

General BRADLEY. We pay for it on delivery, and some of it is not delivered for 2 years after it is ordered.

Mr. PHILLIPS. I understand that.

General BRADLEY. I do not see how you could break a contract and get back $3 billion of that $70 billion in order to expand your atomic energy program.

Mr. PHILLIPS. That is very simple. If you found something which was better, all of those contracts have clauses under which they may be canceled. The point is this: Is not the stuff you are talking about now more modern, more effective, and more necessary than some of the things you thought about 2 years ago?

General BRADLEY. The things we contracted for 2 years ago are probably so near delivery now that you would not save anything if you did go out to cancel the contracts. You would have to pay for it, and you would not get anything, either.

Mr. PHILLIPS. You have not even gotten it yet, on the $50 billion. It is in the bill which is in the Senate now.

General BRADLEY. I am first talking about the $70 billion you spoke about.

Mr. PHILLIPS. All right.

General BRADLEY. In the fourth part of my answer I would like to devote my time to the $50 billion.

Mr. PHILLIPS. All right.

General BRADLEY. I doubt very much if you could recover or save anything out of that $70 billion.

In the 1952 bill which we have asked for this year, that was boiled down from an original estimate on the part of the services, which again I had nothing to do with, as to the making of those estimates, and do not know how accurate they were. In the review of the items in the Department of Defense Office, that was reduced first from $71 billion to about $54 billion, and then the President cut it another couple of billion. We came in with $52 billion, on things which we think are absolutely needed. A large part of it is for planes and ammunition, and, of course, there is the pay for the people in the services today.

I will not say for sure that we could not go in there and cancel a couple of wings of airplanes, and buy atomic energy capability instead. I do not know. It is our best judgment that we need those planes.

But, as I say, your judgment might be: "Well, let us cancel out a couple of hundred, or whatever it is, B–47's, and devote it to this, instead of appropriating additional money for this."

Somebody else's judgment might be better than ours. We recommend a certain number of planes. We also recommend that you increase your capacity for making A-bombs. Whether or not we are right no one knows. We think we are.

Mr. PHILLIPS. Why do you Army officers and Navy officers and Air Force officers always cut out airplanes when you say you have to cut something out in the budget request you have made, because of congressional reductions? Why do you not pick out some of these officers and civilian employees, who are sitting around in the Pentagon doing nothing?

General BRADLEY. I deny that, also, Mr. Phillips.

Mr. PHILLIPS. I could pick out a few for you. Do you delegate me the authority to do it?

General BRADLEY. So far as my office is concerned you can.

Mr. PHILLIPS. In other words, you talk about a very heavy cut. An 8 percent cut in the amount of money for which you are asking next year, an 8 percent saving in your handling of the money alone—that is not a very big cut—would make up all this $3 billion.

Do you know how serious this is? This is money which was not asked for in the regular budget; is it not? Therefore, this exceeds the debt limit of the United States. Therefore, with this request there must necessarily come along a request from the President for permission to exceed the debt limit of the United States. It is that serious. When you do that you have broken down the one barrier we have left, and you have, therefore, added again to the inflationary trend.

Are you going to buy this matériel with money which is not even worth 54 cents on the dollar, if you are not careful?

General BRADLEY. Well, Mr. Phillips, as I have said to many committees up here, we recommend what we think is needed from the military point of view. You people and others are better qualified to know and to have the facts on the effect of this spending than we are. We can only make a recommendation. We are your military advisers. We recommend certain things. If you do not want to follow the recommendation, because of other reasons, we understand that. We do not want this country to spend itself into bankruptcy, either. We are citizens. We realize it would be just as bad to lose our freedom by default as it would be to lose it some other way.

Mr. PHILLIPS. That is all.

Mr. LEBARON. Might I make a comment? What we are talking about here are quite different things. We are talking about, in this appropriation, atomic ammunition, and only atomic ammunition, and not the means of delivery. That is not our business, really, but is that for the Defense Department. The Defense money deals with the delivery vehicles, the training, and other phases of the program.

This is really a request where you either get this much additional atomic ammunition, or you do not get it. I do not think it should be confused with equipment, which is something quite different.

Mr. COTTON. Let us return just for a moment to that analysis, and the allocation which was made of the proportion of the military budget

which is being now devoted and being now used for atomic energy or the development of atomic energy or in connection with it which, as I understood it, included largely money which is being used for planes to deliver the A-bomb.

This may well be off the record.

(Discussion off the record.)

Mr. GORE. Thank you, General. We appreciate your testimony.

Mr. THOMAS. Thank you all very much.

MONDAY, JUNE 16, 1952.

TENNESSEE VALLEY AUTHORITY

WITNESSES

GORDON R. CLAPP, CHAIRMAN OF THE BOARD
C. E. BLEE, CHIEF ENGINEER
G. O. WESSENAUER, MANAGER OF POWER
R. A. KAMPMEIER, ASSISTANT MANAGER OF POWER
JOSEPH C. SWIDLER, GENERAL COUNSEL
JOHN H. CLARK, BUDGET OFFICER

Mr. GORE. The committee will please come to order.

The committee is pleased to have before it Mr. Gordon Clapp, the Chairman of the Board of the TVA; Mr. Blee, Chief Engineer; Mr. Wessenauer, Manager of Power; Mr. Kampmeier, Assistant Manager of Power; Mr. Swindler, General Counsel; and Mr. Clark, Budget Officer.

Mr. Clapp, the committee is considering the supplemental request of the budget for the Atomic Energy Commission, in which there is a requested appropriation of $3,341,000,000 for an expansion of the atomic energy program as contained in House Document No. 476. Mr. Gordon Dean has told us that for this part of the expansion which is involved at Oak Ridge, the Tennessee Valley Authority has been called upon to furnish all the power, and for the expansion which is proposed at Paducah the Tennessee Valley Authority has been called upon to furnish three-fourths of the power.

The committee has before it, in consequence thereof, a supplemental estimate for the Tennessee Valley Authority in the amount of $150 million as presented to the Congress in House Document No. 476. The committee would be pleased to hear your statement in justification for this appropriation.

JUSTIFICATION

Mr. CLAPP. Thank you, Mr. Chairman.

With your permission, I should like to include in the record our letter of June 10, 1952, to Mr. Thomas.

(The letter is as follows:)

TENNESSEE VALLEY AUTHORITY,
Knoxville, Tenn., June 10, 1952.

HON. ALBERT THOMAS,
Chairman, Subcommittee on Independent Offices Committee on Appropriations, House of Representatives, Washington, D. C.

MY DEAR MR. THOMAS: This letter supports the supplemental estimate for TVA in the amount of $150,000,000 which the President submitted to the Congress on May 28, 1952.

The Atomic Energy Commission has requested TVA to supply substantial blocks of power in connection with the proposed expansion of its facilities at Oak Ridge, Tenn., and Paducah, Ky. The amounts of power required are 950,000 kilowatts at Oak Ridge and 705,000 kilowatts at Paducah making a total of 1,655,000 kilowatts plus related transmission losses. Neither the power capacity now under construction nor the additions proposed in TVA's regular budget program for fiscal year 1953 include provision for this very large new load development. In order to supply this load it is therefore necessary for TVA to begin immediate construction of new capacity. For this purpose, we propose to add steam-power generating units having a combined rated capacity of 1,710,000 kilowatts, as follows:

Location:	*Rated capacity, kilowatts*
4 additional units at Shawnee	540,000
2 additional units at Kingston	360,000
New plant, east Tennessee, 2 units	360,000
New plant, middle Tennessee, 2 units	450,000
Total	1,710,000

TVA will require $121,000,000 in 1953 for these generating facilities, which are estimated to cost $287,000,000 upon completion. Related transmission facilities, estimated to cost $15,000,000 in total, will require $5,000,000 in 1953.

Under the proposed schedule, the first of the new generating units would be in operation in August 1954. Other units would follow at intervals of 1 to 3 months, with the last one in the program scheduled for completion in January 1956.

The major factor in determining this schedule is the period of time required to obtain from manufacturers the major equipment items such as turbines, generators, and boilers. The schedule will not provide the new generating capacity as rapidly as the scheduled increases in AEC's power requirements. Therefore, in order to help provide some power on an interim basis to meet the schedule for power deliveries as requested by AEC it will be necessary to shorten the construction time for eight units in our regular program of capacity installations by 2 to 11 months. The supplemental estimate includes $24,000,000 necessary in 1953 for this acceleration. Except for a relatively small proportion required to cover such costs as overtime work, this amount will be offset by reduced requirements for funds in later stages of construction.

The enclosed table summarizes the estimates for the several projects included in the supplemental estimate. We will be glad to furnish any additional information you may require and to appear before your committee at any time.

Sincerely,

GORDON R. CLAPP, *Chairman of the Board.*

Enclosure.

Supplemental program, fiscal year 1953

	Obligations (millions of dollars)				
	1953	1954	1955	1956	Total
Generating facilities:					
New installations:					
4 additional units at Shawnee	49	24.0	10	2.0	85
2 additional units at Kingston	20	17.5	11	1.5	50
New plant, east Tennessee, 2 units	23	21.6	21	2.0	67
New plant, middle Tennessee, 2 units	29	28.0	22	6.0	85
Subtotal	121	90.5	64	11.5	287
Acceleration of schedules of 8 generating units included in regular program	24		—14	—7.0	3
Total generating facilities	145	90.5	50	4.5	290
Transmission facilities	5	5.0	5		15
Total	150	95.5	55	4.5	305

GENERAL STATEMENT

Mr. CLAPP. Your statement of the situation of the Atomic Energy Commission with respect to power supply as it relates to the TVA is in accord with our understanding. We have been asked by the Atomic Energy Commission to supply an additional 950,000 kilowatts for the Oak Ridge expansion and 705,000 kilowatts for expansion at their Paducah operation. That makes a total of 1,655,000 kilowatts, which, together with transmission losses involved in handling such a load, calls for an installed-capacity program of 1,710,000 kilowatts.

The $150 million which the President's message requests for the TVA as a supplemental appropriation to be available in 1953 would make it possible for the TVA to get started with a construction program for additional steam plant facilities with which to meet this new atomic energy expansion load.

The $150 million is broken down in some detail in our letter of June 10 to Chairman Thomas of this committee, and it is as follows:

We will require $121 million in 1953 for these new generating facilities. They will cost $287 million upon completion. The transmission facilities which will be required to get the power from these steam plant units to Oak Ridge and Paducah will cost $15 million in total, according to our estimates, of which we will need $5 million in 1953.

In addition, we are asking for $24 million to be made available in 1953 with which to speed up or accelerate the installation of units in our pending 1953 program and some units already under construction from programs previously appropriated for.

Of this $24 million for acceleration of existing projects, only $3 million represents a net increase in the total cost. The rest of the $24 million would be an advance of funds in 1953 which we otherwise would be requesting in subsequent years under a normal schedule.

The requirements of 1,710,000 kilowatts would be met by a program which has been developed by our engineers as the most economical way of supplying this additional requirement for Oak Ridge and Paducah. It would consist of four additional units at Shawnee and two additional units at Kingston, at plant sites we are now developing, and the opening up of a new plant site in east Tennessee near Rogersville, in Hawkins County, and a new plant in middle Tennessee near Gallatin, in Sumner County, on the Cumberland River.

The one in east Tennessee would be on the Holston River on the upper reaches of the Cherokee Reservoir. Both plant sites are well located within the TVA system and service area.

I think the quickest way to cover the feasibility of and the reasons for the program as proposed and as I have just described it is to ask Mr. Kampmeier to explain from the map of the TVA power service area, the location of these proposed installations in relation to the sources of the coal.

Mr. KAMPMEIER. We have added some information to this map which the committee has used before.

This red line [indicating] is the outline of the area supplied with TVA power.

Mr. PHILLIPS. Is that your original area, or has that been extended?

Mr. KAMPMEIER. That is the area as it now exists and substantially as it has existed for the last 6 or 8 years.

Mr. PHILLIPS. The word "substantially" suggests that it is not quite the same. Down south, in the Alabama area, have you not gone south of your original line? Is that not an addition there at the bottom of the map? Is that not new?

Mr. KAMPMEIER. That area in Alabama at the bottom of the map [indicating] has not changed in 12 or 13 years, Mr. Phillips.

Mr. PHILLIPS. Then, when you say it is "substantially the same," will you show me the differences?

Mr. WESSENAUER. The last main addition, Mr. Phillips, was in 1945, in the upper east Tennessee area.

Mr. KAMPMEIER. This east Tennessee area here [indicating] was the last change of any size, as Mr. Wessenauer says.

Mr. PHILLIPS. You have already testified to that before this committee.

Mr. KAMPMEIER. Yes, that change was some 7 years or so ago.

Since then there was a small change, for example, over here off the edge of this map [indicating].

You will note that this red line runs off the map on this side. The service area extends over here [indicating] to the Mississippi River. There is a minor change down here in the State of Mississippi which was made within the last several years. That is just about all, Mr. Phillips. There have been one or two small municipal systems which formerly generated their own power with small fuel plants and which are buying TVA power. It is that sort of change which I had in mind when I said "substantially no changes."

LOCATION OF COAL IN TVA AREA

Mr. YATES. Does the cross-hatching mean anything?

Mr. KAMPMEIER. Yes, sir. That is another item of information which has been added to the map. The cross-hatching in blue indicates the coal fields in this general area.

The principal coal fields are the west Kentucky and Illinois, the eastern Kentucky extending into Virginia and West Virginia, and then an extension of the Appalachian coal fields down through Tennessee and into Alabama.

Those coal fields have considerable significance in relation to this new load. That is the reason that information has been added.

The other items which have been added to this map are the location of Oak Ridge [indicating] and the location of these proposed new generating units [indicating].

The coal fields about which you asked are especially important for this reason: The present use of power at Oak Ridge requires the consumption of more than 2 million tons of coal a year. This expansion which is now before you will mean the consumption of more than 3 million tons a year of additional coal. The total coal consumption in producing the power which will be used at Oak Ridge will be some 5.5 million to 6 million tons a year.

Mr. YATES. Where did I get the figure of 8 million which I have in mind?

Mr. CLAPP. Our total.

Mr. KAMPMEIER. The total at the end of next year for the entire system.

Mr. YATES. Including these new additions?

Mr. KAMPMEIER. No.

Mr. YATES. Excluding them?

Mr. KAMPMEIER. Excluding these new additions.

Since that consumption of coal to supply power for Oak Ridge, some 5.5 or 6 million tons a year, is about the same size as the total production of coal in the State of Tennessee at the present time, that item becomes of considerable importance. In order to provide the maximum assurance of coal supply for producing the power which is required and in order to assure economical fuel supply, it is highly desirable to provide a substantial part of this increased power for Oak Ridge from the coal which is produced on the one hand in the west Kentucky field and on the other hand from the coal which is produced in the east Kentucky and Virginia fields.

You will note that this plant which is proposed at Rogersville would be near the Virginia-east Kentucky coal fields. The plant at Gallatin here on the Cumberland River would be between Oak Ridge and the west Kentucky coal fields.

The State of Kentucky produces 12 to 15 times as much coal a year as the State of Tennessee. This little section of the Appalachian coal fields in Virginia, in those few counties [indicating], produces about twice as much coal as the Tennessee coal fields produce. Therefore, being able to rely on these major coal fields in east Kentucky and Virginia, on the one hand, and the west Kentucky fields, on the other hand, will add immeasurably to the assurance of a fuel supply and the economy of a fuel supply in producing this power.

Now, in addition to the proposed installations at those locations, the proposed addition to Kingston would mean some additional use of coal from the Tennessee coal fields as well. These three coal fields would all contribute to the Oak Ridge supply.

COST OF COAL

Mr. YATES. What is the difference in cost as between the Tennessee coal and the coal which you get from Virginia and east and west Kentucky and Illinois?

Mr. KAMPMEIER. The Tennessee coal is generally the highest cost to mine, but considering the shorter transportation distance which is involved, it costs us approximately the same per million B. t. u.'s delivered at the plants as the coal from the other fields, in the quantities we are now using and have scheduled for the near future.

One of the uncertainties would be as to what would happen to that cost of Tennessee coal in the event of a very rapid major expansion of use from an area in which production has been so limited.

Mr. YATES. As I remember the coal contract hearing which we had, there was a tremendous drive on to open up every type of coal mine in Tennessee.

Mr. KAMPMEIER. That is right.

Mr. YATES. As I remember the hearing further, the point was brought out that the coal in Tennessee was cheaper to TVA than the coal from Kentucky and from Virginia and from Alabama. Is that correct?

Mr. KAMPMEIER. No. I can see how such a misunderstanding may have arisen. I believe the point which was made was that for the Kingston plant [indicating] and for the Widows Creek plant

here [indicating] the coal from these immediate fields [indicating] would be a cheaper source of supply for those plants than to bring the coal, for instance, from west Kentucky and southern Illinois all the way up the river to those plants.

Mr. PHILLIPS. I thought you bought your coal delivered at the plants.

Mr. KAMPMEIER. That is correct. For these plants, therefore, the Tennessee coal is the cheaper coal. But if we gave the impression that the coal delivered to these plants [indicating] from the Tennessee field is cheaper than the coal delivered from the fields in southern Illinois to Shawnee, for example, then that was not intended. We did not intend to indicate that.

Mr. GORE. What is the comparable cost per B. t. u.'s delivered at Shawnee and delivered at Kingston?

Mr. KAMPMEIER. It is fairly close to being the same, Mr. Gore, on the basis of present quantities. To be more specific, we estimate the cost per million B. t. u.'s at Shawnee to be about 17.5 cents. At Johnsonville it is about 19 or 19.5 cents. At Kingston it is around 19 or 19.5 cents.

If, on the other hand, we were even to more sharply expand our use of coal in the Tennessee area, it is highly uncertain as to what those additional increments of coal would cost, for they might have to be obtained more rapidly than the resources of this area could be developed to provide them.

Mr. GORE. Is that another way of saying that it would be an uncertain and hazardous undertaking to put all your expanded steam plant generating facilities there? It might require more coal than you could buy from that field at an economical price?

Mr. KAMPMEIER. Exactly. In other words, with the Oak Ridge power expansion requiring an additional 3 million to 4 million tons of coal a year, we want to give the Atomic Energy Commission assurance of the availability of the necessary coal at an economical cost. We can maximize that assurance by dividing the supply between the west Kentucky fields, used to supply a plant at Gallatin [indicating]; the east Kentucky and Virginia fields, used to supply a plant near Rogersville [indicating]; and the Tennessee fields, used to supply the Kingston plant.

Mr. YATES. Will there be enough coal in that region to supply power at an economical level?

Mr. KAMPMEIER. At Kingston?

Mr. YATES. At all of them.

Mr. KAMPMEIER. At all of them?

Mr. YATES. Yes.

Mr. KAMPMEIER. I think there is no cause for concern there. For example, these few counties in Virginia, south of the heavy line that indicates the boundary of the Tennessee Valley, produce about 10 million tons of coal a year.

Mr. YATES. What are you paying, on the basis of that B. t. u. figure you just gave, at Fort Patrick Henry, Boone, and Cherokee?

Mr. KAMPMEIER. Those are hydro plants, and therefore we are not buying coal for those plants.

Mr. YATES. I see.

Mr. KAMPMEIER. Our estimate for coal at the Rogersville plant out of this Virginia area is that its cost would also be in the order of 19 cents per million B. t. u.'s.

Mr. YATES. Is that applicable to Shawnee, too?

Mr. KAMPMEIER. The Shawnee plant is served largely from the Illinois coal fields plus the west Kentucky coal fields, and there the cost is estimated at 17.5 to 18 cents per million B. t. u.'s.

Mr. YATES. Why is that less expensive than Rogersville?

Mr. KAMPMEIER. Mainly because it is a little bit more accessible to the coal, and has river transportation from some of the mines. The average freight costs there represent a saving of approximately 1 cent per million B. t. u.'s as compared with the freight costs to Rogersville.

Mr. YATES. Your present coal consumption in the TVA is about 8 million tons?

Mr. KAMPMEIER. By the end of 1953 it is estimated to be 8 million tons. Today it is only 2 million or 3 million.

Mr. YATES. What will it be in the event the facilities you have portrayed on your map are constructed?

Mr. KAMPMEIER. Approximately 15 million.

Mr. YATES. It will be doubled again?

Mr. KAMPMEIER. Yes, sir. That is what makes this coal question so important.

Mr. YATES. Yes.

Mr. KAMPMEIER. And makes it so necessary to tap these various sources of supply and not put all of our eggs in one basket.

Mr. YATES. As I remember your previous testimony, you have a deal with a private utility to supply some energy for the Paducah plant or for the Shawnee plant. Have you not? Or is that the Atomic Energy Commission I am thinking of?

Mr. KAMPMEIER. The Atomic Energy Commission has an arrangement to provide part of the power for its plant here near Paducah from Electric Energy, Inc., which is a group of private companies.

Mr. YATES. As I remember that testimony, you were to supply 50 percent of the energy and the private companies were to supply the other 50 percent.

Mr. KAMPMEIER. That is correct—for the initial installation.

Mr. YATES. With the construction of the four steam plants which are pictured on your map, how will that bear upon the agreement entered into with those private companies?

Mr. KAMPMEIER. We have been asked by the Atomic Energy Commission, in addition to supplying 50 percent of the power for the original plant, to supply 75 percent of the power for the addition they propose to make at that plant.

Mr. YATES. Would the other 25 percent be supplied by the other group?

Mr. KAMPMEIER. Yes, presumably.

Mr. YATES. Is that all the private group can supply?

Mr. KAMPMEIER. That we do not know. All we know is that the Atomic Energy Commission has told us, as a result of their investigations and conclusions, that they want to get 75 percent of the power from us. They asked us for proposals on 25 percent, 50 percent, 75 percent, and 100 percent of the power. Then they informed us that on the basis of those proposals and the proposals they had received from others, they wished to have us supply 75 percent.

STEAM PLANTS TO BE CONSTRUCTED

Mr. YATES. In the last appropriation bill the House struck out two of the Shawnee steam plants. Are those back on this chart?

Mr. KAMPMEIER. No. Those would be two of these units that had been shown in red as being in the 1953 budget. The four units at Shawnee now proposed, together with these other proposed units, add up in total to only enough capacity to equal the power load which the Atomic Energy Commission is asking us to supply plus a few percent for transmission losses.

BUDGET REQUEST

Mr. PHILLIPS. Mr. Clapp, you are asking for $150 million?

Mr. CLAPP. That is right, sir.

Mr. PHILLIPS. Does that include the $24 million?

Mr. CLAPP. That includes the $24 million required for acceleration of the present and proposed 1953 program.

Mr. PHILLIPS. Let me get this clear. You say TVA will require $121 million in 1953, but the total requirement when completed will be $287 million?

Mr. CLAPP. That is for generating facilities alone.

Mr. PHILLIPS. The transmission, in addition to that, will be about $15 million?

Mr. CLAPP. That is right.

Mr. PHILLIPS. Of which only $5 million will be required in 1953?

Mr. CLAPP. That is right.

Mr. PHILLIPS. That is $121 million plus $24 million plus $5 million?

Mr. CLAPP. That is correct. That adds up to the $150 million.

Mr. PHILLIPS. In general, this is all needed for the acceleration of the present program or the preparation for an additional supply of electric current?

Mr. CLAPP. That is right.

ELECTRIC CAPACITY TO BE SUPPLIED FOR ATOMIC ENERGY BY THE TVA

Mr. PHILLIPS. Now, at the request from the AEC, how much electric capacity did they tell you they would have to have?

Mr. CLAPP. They asked us to supply 950,000 kilowatts at Oak Ridge beyond what we had previously committed to them.

Mr. PHILLIPS. That is the total?

Mr. CLAPP. That is the addition for Oak Ridge only—950,000 kilowatts.

Mr. PHILLIPS. That is the addition. You are asking today for the capacity of 950,000 kilowatts in round numbers more than you contemplated when you were up here a few months ago?

Mr. CLAPP. That is right—for Oak Ridge alone. That is 950,000 kilowatts for Oak Ridge alone, for the expansion there at Oak Ridge. There is also 705,000 kilowatts for the expansion at Paducah. The 705,000 kilowatts for the expansion at Paducah is what we understand to be 75 percent of their total requirement for the expansion program at Paducah.

Mr. PHILLIPS. The 1,655,000 kilowatts really will build up to about 1,850,000?

Mr. CLAPP. Well, there is 950,000 kilowatts for Oak Ridge and 705,000 kilowatts for Paducah, which makes a total of 1,655,000.

Mr. PHILLIPS. But you said the 705,000 kilowatts was only about 75 percent.

Mr. WESSENAUER. The total new load at Paducah will be 940,000 kilowatts.

Mr. PHILLIPS. You are actually building up to about 1.9 billion kilowatts, contemplated?

Mr. CLAPP. We are not——

Mr. WESSENAUER. No, sir. The AEC is not asking us for the remainder.

Mr. PHILLIPS. Where are they getting the other power?

Mr. WESSENAUER. From some other source. We assume it is from Electric Energy, Inc. I assume the Atomic Energy Commission can best answer that question.

Mr. PHILLIPS. I had a young man who does some work for me at times look up some of these things. He did it rather quickly; so I shall have to ask you about them.

As I recall the testimony, somewhere, when Paducah was first proposed, the Atomic Energy Commission asked for proposals from both the TVA and Electric Energy, Inc.

Mr. CLAPP. That is right.

Mr. PHILLIPS. Electric Energy, Inc., for the record, is a group of five private utility companies which have joined together under that name in order to furnish electric current. My recollection is that Electric Energy, Inc., bid somewhat lower than the TVA.

Mr. CLAPP. That is not our understanding of it.

Mr. PHILLIPS. Is that correct?

Mr. CLAPP. No, Mr. Phillips.

Mr. YATES. Bid lower on what?

Mr. PHILLIPS. Made a lower bid to supply energy to the AEC than the TVA did.

Mr. CLAPP. The figures, as we recall the record of the testimony before this committee, would indicate that the Electric Energy, Inc., proposals to AEC were about the same as the TVA proposals.

Mr. PHILLIPS. Of course, to this committee there is a distinction between energy from private sources and energy from public sources, largely on the basis that the private sources pay taxes and the public sources do not pay taxes, and we would like to see some money come into the Treasury.

Mr. CLAPP. If you were to make those calculations in your comparison, Mr. Phillips, you would still find that the TVA rate is lower than EEI's, even after taking into account the taxes.

Mr. PHILLIPS. Whatever the bids were, as I recall it and as my notes show, the order for energy was divided about 50–50.

Mr. CLAPP. That is right.

Mr. PHILLIPS. In connection with that agreement or with that order or whatever you choose to call it, Electric Energy, Inc., is constructing a plant which I show here as Joppa. Is that correct?

Mr. CLAPP. Yes, sir.

Mr. PHILLIPS. That is to have four units with approximately a 161,000 capacity. The first unit is supposed to go into operation in 1952.

The TVA now has, as well know, since this is not new, constructed the Shawnee plant, which is just across the river.

Mr. CLAPP. That is right, we are building it now.

Mr. PHILLIPS. That is going to have about 135,000 kilowatts. Then you asked for new steam units in addition to that, and we refused to grant you a couple of those. I understand the Senate has weakened and put them back in. Is that right?

Mr. CLAPP. The Senate has put back two of the units which were taken out by the House.

Mr. PHILLIPS. Was it two or four?

Mr. CLAPP. The 135,000-kilowatt figure to which you refer is the size of each unit at Shawnee. There are four such units——

Mr. PHILLIPS. We took out four units?

Mr. CLAPP. Let us go back and get the history straight, if I may, Mr. Phillips. I am not sure that you understand the recent House action was with respect to the additional four; the first four units started sometime ago are now under construction.

Mr. PHILLIPS. I understand. We are talking about something which does not yet exist.

Mr. CLAPP. The original Shawnee steam plant of four units, Mr. Phillips, should not be confused with the proposed four-unit addition which was dealt with by this committee this last winter.

Mr. PHILLIPS. I think that is clear.

My first question would be this: In the request you make today, how many plants are you asking for, and where do you expect to put them?

Mr. CLAPP. We are asking for four units to go in at Shawnee for this Atomic Energy Commission load, irrespective of how the 1953 regular appropriation comes through the Congress.

Mr. PHILLIPS. That is my point. In other words, you are asking for four new plants, no matter how many you get out of your last request?

Mr. CLAPP. Four new units for Shawnee alone.

Mr. PHILLIPS. That is right. If we were to have given you all you asked for, then you would have had eight new plants.

Mr. YATES. Ten.

Mr. PHILLIPS. I believe it is eight.

Mr. CLAPP. If we were to get in the 1953 proposed appropriation request all we asked for plus what we are now asking for, there would be 12 units proposed or under way at Shawnee. We are aware of the fact that because the 1953 appropriation request as it left the House had no additional units for Shawnee in it, and that only 2 have been reinstated by the Senate, the most that can come out of the 1953 regular appropriation is 2, in addition to the original 4, to which, if you then add the 4 we are now requesting would make 10.

Mr. KAMPMEIER. Perhaps it would help if we were to just X out on the map two of these units as having been disallowed both by the Senate and by this committee.

Mr. PHILLIPS. But your chart does not show the ones for which you are asking in this bill.

Mr. KAMPMEIER. That is these four [indicating].

Mr. CLAPP. You asked how many additional units we are asking for.

Mr. PHILLIPS. Yes.

Mr. CLAPP. There are the four Shawnee units in this proposed supplemental for the Atomic Energy Commission load. There are two at the Gallatin site. There are two additional ones at the Kingston site. And there are two new ones at the Rogersville site. That makes a total of 10.

Mr. PHILLIPS. The reason I asked Mr. Kampmeier about the area earlier is because I should like to know if any of those are outside what is called your TVA authorized area.

Mr. CLAPP. None of them are outside the TVA service area except Shawnee. It is also just outside the Tennessee Valley. All the others are either in the valley or the service area or both.

Mr. PHILLIPS. How do you get the authority to build plants outside your area?

Mr. CLAPP. As we have brought out in the discussions with this committee on several other occasions the TVA Act authorizes us to build steam plants. It authorizes us to serve in the national defense. The Shawnee location was the most economical way for us to satisfy the requirement for atomic energy operations at Paducah. It is about 10 miles outside the TVA watershed area and the power service area.

Mr. PHILLIPS. Do you not think that is stretching your authority a little bit over there?

Mr. CLAPP. We do not think so, Mr. Phillips.

Mr. PHILLIPS. Your customer is the Atomic Energy Commission?

Mr. CLAPP. That is right.

Mr. PHILLIPS. How long is the Atomic Energy Commission going to make atomic energy down there?

Mr. CLAPP. You know the answer to that better than I do, sir.

Mr. PHILLIPS. My question to you is: what are you going to do with all this power when the Atomic Energy Commission stops asking for it?

Mr. CLAPP. When the Atomic Energy Commission no longer has a need for it, which is a time in the future we have no basis for appraising, we will find that the load requirements as they grow normally in the TVA service area will in a relatively or reasonably few years absorb the power which is released by the Atomic Energy Commission.

Mr. COTTON. You mean you will have moved enough factories down there from New Hampshire by that time.

Mr. PHILLIPS. And you will absorb enough private companies which otherwise would have been paying taxes for the use of all that energy.

Mr. CLAPP. We do not plan to absorb any private companies, Mr. Phillips, because private utilities do not operate in our service area now.

So far as the additional factories are concerned, most of the development, of course, which is taking place in the Tennessee Valley area is not the result of moving factories from other areas but from the developing of industries from the natural native resources of the Tennessee Valley area including new plants which are constructed and built for the first time.

Mr. COTTON. If they are not moving, that would just result in the closing of the factories in this area.

Mr. CLAPP. Interestingly enough, we keep watch for that $100 reward which is offered in New England for the proof of any industry

which moves out because it cannot get power. So far we have been advised that nobody has claimed the reward.

Mr. YATES. Off the record.

(Discussion off the record.)

COST FACTORS DETERMINING RATES TO BE CHARGED FOR ELECTRICITY

Mr. PHILLIPS. I should like to know how you set your rates. This is a constant question which I ask, as you know. How does your TVA rate to AEC, for example, compare with the EEI rate? Do both of you take into account the State and county and excise and Federal income taxes and interest on your investment and all such items when you set your rates? I think that partially is the answer to Mr. Cotton's question. Is it not?

Mr. CLAPP. We set our rates, of course, on the basis of what our costs are. Presumably, the private utilities would do the same thing, plus a profit. The rates which we quote to the Atomic Energy Commission or any other customer are based upon what we estimate it will cost us to produce the power, to assimilate it into our system, and to transmit it to the customer, and it covers all the cost of production, transmission, and operation plus depreciation——

Mr. PHILLIPS. But not taxes?

Mr. CLAPP. Taxes or payments in lieu of taxes to the States and counties are included where applicable under the provisions of section 13 of the TVA Act. (Sales to other Federal agencies do not include payments in lieu of taxes.)

Mr. PHILLIPS. You will remember we went into this before, and it was pretty evident that your payments in lieu of taxes were not the equivalent of what a private utility does pay in taxes.

Mr. CLAPP. Our payments in lieu of taxes, Mr. Phillips, are substantially more than the taxes that were being paid when we bought these facilities.

Now, as to the question of whether, if all of this system which is now the TVA system were a private system, it would be paying more or less taxes to the States or counties, that is a question which we could discuss indefinitely, because the fact is that no private utility would have built the system we have.

Mr. PHILLIPS. Certainly they will not if you do not give them a chance to come in there on any comparable arrangement.

Mr. CLAPP. But they were in there, sir.

Mr. PHILLIPS. Not when all the prospective customers were there.

Mr. CLAPP. They had the same future ahead of them that the TVA had when it began, but they saw fit, apparently, not to develop it.

Mr. PHILLIPS. Let me approach that another way. I have a new thought now to bring up to you.

You make a proposal to the Atomic Energy Commission to sell them power at a certain price, and on the basis of that you come to us and ask us to finance you, as your bankers, to put up the necessary plants. It will not be long before you will be back to tell us it is going to cost you more than you had anticipated and that you should like to have a little supplemental money from the Congress. Now, who is going to pay this difference? Are you going to raise your rates to the Atomic Energy Commission, or is the taxpayer going to make up the difference in the cost of construction?

Mr. CLAPP. Mr. Phillips, we will be glad to explain that to the committee if we come back to ask for additional money beyond our present estimates to meet these requirements.

Mr. PHILLIPS. Would you not agree that we are about to start on another little inflationary trend? Do you not think there is going to be a lot of new money poured into the banks as a result of the present argument between the Federal Reserve and the Treasury for lending purposes? Therefore, there is going to be a little more inflation, and then there will be another request for wage raises and so on.

Mr. YATES. Are you arguing in favor of the controls bill, Mr. Phillips?

Mr. PHILLIPS. No. I am just being realistic. I am just saying that pretty soon Mr. Clapp is coming back and will say: "Look. We figured so much for labor; we figured so much for steel; and we figured so much for materials; and we cannot possibly do it."

Is Mr. Clapp then going to raise the rates to the AEC?

Mr. CLAPP. Our rates to the AEC are firm rates subject only to escalator provisions which are tied to broad price indexes and not to possible fallacies in our own estimates. These are firm rates to the AEC.

Our record on meeting our estimates is a pretty good one. Over these past 18 years we have built all these things for which this committee and the Congress has appropriated and we have come within about 3 percent of our total cost estimates in actual performance, despite emergency schedules and rising costs.

Now, I am not suggesting that these estimates which we give here or in any of our presentations for the programs that we propose to build are infallible. But the rates we have quoted to the AEC are not cost-plus rates. They are rates based upon our estimates and are subject to escalation only on the basis of fluctuations in general price indexes and not fluctuations in our own actual costs of building these steam plants. The AEC, therefore, gets a pretty firm proposition from us. If they get as firm a propostion from the private group, then they are very fortunate.

Mr. PHILLIPS. Well, if you have an escalator clause in there, I am not sure they did not get as good a proposition from the private sources. Is it not a fact that Electric Energy, Inc., proposed to furnish all the power needed at Paducah up to this 960,000 kilowatts? Is that not so?

Mr. CLAPP. You mean this last one?

Mr. PHILLIPS. I have a photostat somewhere here, which I think is copied from a newspaper, saying that they offered to supply all that 960,000 kilowatts.

Furthermore, did not 15 private electric companies offer to form a subsidiary company to supply the whole 1,800,000 kilowatts?

Mr. CLAPP. I am not advised of that, Mr. Phillips.

Mr. PHILLIPS. I know I am right on the first statement, but I am not sure I am right on the second. I have a notation to that effect which I should have to check myself.

Mr. CLAPP. Let me be very clear, if I may, about what we do know and what we propose with respect to the power supply of the Atomic Energy Commission.

The Atomic Energy Commission has asked us to supply all the power for its expansion at Oak Ridge, and they have asked us to

supply 75 percent of the power for the expansion at Paducah. Why they have asked us to supply 75 percent and have asked somebody else to supply 25 percent is something I think they could much more appropriately comment on than we could. I assume and infer from the fact that they asked us to supply 75 percent that they considered it to be to the best interest of the Atomic Energy Commission program, and I would hope, to the best interest of the Government, to ask the TVA to supply that power rather than to get it from somewhere else.

Mr. PHILLIPS. I do not know that I would go so far as to say that it is in the best interest of the Government, because the Government keeps destroying its tax sources all the time. I do not think that is to its best interest.

Mr. CLAPP. I think if that were examined carefully, Mr. Phillips, you might be surprised to find, on the basis of comparing the tax situation in financing TVA as a part of the Government with the tax situation of a group of power companies, financed on the basis of a contract assurance for use of the plant which they will build, and selling their bonds to insurance companies, that the net cost to the Government, including comparable tax calculations, of power from the TVA will be cheaper to the Atomic Energy Commission and to the Government, which means to the taxpayer, than it would be if it were coming from these private groups.

Mr. PHILLIPS. Well, I will ask you one final question, just to satisfy my own curiosity.

PROPOSED INVESTIGATION OF ADEQUACY OF PAYMENTS IN LIEU OF TAXES

Has some sort of a proposal been made to you or been made seriously that an investigation be made of this by an organization of the utility commissioners of the United States?

Mr. CLAPP. No such proposal has been made to us.

Mr. PHILLIPS. Do you know of such a proposal?

Mr. CLAPP. No, sir; I do not know of one. We would welcome——

Mr. YATES. What proposal are we talking about?

Mr. PHILLIPS. Someone suggested, although I do not know who, that the executive committee of the National Association of Railroad and Utility Commissioners make an investigation of this thing which Mr. CLAPP and I discuss periodically as to whether we should destroy our tax sources by giving all the business to the TVA.

Mr. CLAPP. We would be glad to have the investigation.

Mr. YATES. What is to prevent their doing it?

Mr. PHILLIPS. To prevent them from making the investigation?

Mr. YATES. Yes. They can make such a survey.

Mr. PHILLIPS. There is nothing to prevent it at all. I am just asking if Mr. Clapp knows anything about it, because I do not.

Mr. CLAPP. I know nothing about it, Mr. Phillips.

Mr. PHILLIPS. I think it would be a good idea. Would you call that a disinterested group? I guess you would. They are elected officials of the States who make the utility rates. My experience with the commission in California is that this is a very able and very competent group of men.

Mr. CLAPP. I would suppose there would be some variation, State by State, on that. But, be that as it may, so far as the TVA is con-

cerned, the rates which we have quoted to the Atomic Energy Commission can stand any kind of examination which anyone with competence and a desire to get at the truth wishes to make.

Mr. YATES. As a matter of fact, has not this fight been going on for 20 or 25 years as to whether development of power resources of this kind are better through private power companies or through Government power?

Mr. PHILLIPS. That is called competition.

Mr. YATES. No. What do you mean by "competition"?

Mr. PHILLIPS. If you have competition between industries or competition between private industry and the Federal Government, you generally are able to keep down the rates. If you let the Federal Government have a monopoly, I do not think you are going to be able to keep down the rates any more than you would be able to if you let private industry have a monopoly. That is the point of having these State commissions look into the private rates.

Mr. CLAPP. Is the suggestion, Mr. Phillips, that our rates to the Atomic Energy Commission are too high?

Mr. PHILLIPS. I do not know that they are. I do not know what your rates are. My suggestion is that you are covering a good deal of ground, on the basis of whatever the intent of the TVA is, and you are edging outside your field now. It is only about 10 miles, but nevertheless that is the point of the wedge.

Is that not right, Mr. Yates? Are you going to debate me on that?

Mr. YATES. Off the record.

(Discussion off the record.)

Mr. CLAPP. Just to be sure the record is clear, these rates which the TVA charges for the sale of its power include a return on the investment. The average rate of return from the beginning of the TVA is a little better than 4 percent. In recent years it has been up above 5 percent.

Mr. YATES. That is 4 percent of what? Is that the investment?

Mr. CLAPP. On the investment in power facilities.

Mr. YATES. Yes.

Mr. CLAPP. We figure that as a part of our obligation, that we are to recapture that from the sale of power.

Mr. YATES. When you say "investment in power facilities," a question occurs to me. Does the TVA make investments other than in power facilities, such as community facilities and schools and housing facilities and things like that?

Mr. PHILLIPS. Recreational?

Mr. CLAPP. Only in connection with the construction of a project, Mr. Yates. The other investments that the TVA makes, of course, are in navigation facilities, flood-control facilities, chemical facilities, and the like.

Mr. YATES. Is the return you spoke about predicated upon that investment as well?

Mr. CLAPP. No; it is not.

Mr. COTTON. I want the record to show, as is usually the case, that these philosophical discussions have lasted so long that I will not have much of an opportunity to interrogate these witnesses. It has happened for 2 years, and I am getting a little tired of it. I will try to confine my questions. I did want a little information.

SOURCES OF COAL SUPPLY

On that chart I notice two units in the center. That is the Kingston steam plant. Those appear to me to be quite distant from any of the coal fields which are shown on that chart. Is that correct?

Mr. KAMPMEIER. Perhaps these Tennessee coal fields do not show up very well. The lines are not very heavy. There are coal fields throughout this part of the State of Tennessee [indicating]. Much of the coal for the Kingston plant comes from mines within distances of 20 to 60 miles of the plant.

Mr. COTTON. Do you happen to know from whom those coal purchases will be made? That is, do you know what companies participate in furnishing that coal? What companies usually bid? Is it done by bid?

Mr. KAMPMEIER. We could furnish for the record a list of those companies which have bid on the coal supply for either the Kingston plant or the Watts Bar plant nearby or both, as the committee might wish.

(The information is included in that provided below in response to subsequent questions.)

Mr. COTTON. What is the source of coal for the Shawnee plant?

Mr. KAMPMEIER. More of the coal for the Shawnee plant probably will come from Illinois than from any other area, although a substantial part of it may also come from west Kentucky.

Mr. COTTON. We have had some testimony before this committee in hearings sometime ago as to the grade of the coal in the Illinois fields. How does that grade compare with the grade in the Tennessee fields?

Mr. KAMPMEIER. It is not quite as high in quality. The coal in the Tennessee fields has more B. t. u.'s per pound than the coal in the Illinois fields, by and large. Of course, Mr. Cotton, you understand I am speaking in averages.

Mr. YATES. Is that true of the Kentucky fields, too?

Mr. KAMPMEIER. Yes. The coal in the west Kentucky fields tends to run a little lower in B. t. u.'s per pound than the Tennessee coal. On the other hand, the coal in the east Kentucky fields is higher than the west Kentucky coal in B. t. u. content.

Mr. COTTON. That anticipates my question.

PROSPECTIVE SOURCES AND QUALITY OF COAL SUPPLY

Would you be willing to save us time and to furnish for the record the comparison of the B. t. u. content of those different fields, with some indication of the companies which will be in a position to furnish coal for these proposed new steam-plant units? Is that possible?

Mr. KAMPMEIER. I believe we can do that, Mr. Cotton. The figures on B. t. u. content might depend on such considerations as whether we base them on coal we are buying or whether we take all the production in the area. The coal which goes to the steam plants, the so-called steam coal, tends to be coal of lower B. t. u. content than the coal which goes to the domestic market, for example, and averages for the fields might not give you exactly what you would like. However, I believe we can be responsive.

(The information is as follows:)

Prospective suppliers of coal for the Kingston plant include the following, who are now under contract to furnish coal for that plant or who have recently supplied sizable quantities for the nearby Watts Bar plant. Other present and future operators in the Tennessee coal fields would also be possible suppliers.

Bransford Coal Co.
Capitol Coal Sales, Inc.
Davidson Coal Co.
Diamond Coal Mining Co.
Harriman Coal Co.
Logan & Kanawha Coal Co.
Love & Amos Coal Co.
Meadow Creek Coal Co.
Southern Coal & Coke Co.
Sterling-Midland Coal Co.
Volunteer Coal Co.
Williams Coal Co.

Prospective suppliers of coal for the plant near Rogersville include those listed below. This list is not based on previous purchases or bids, because this is a newly proposed plant for which no bids have been requested; it is simply a list of producers in the southwest corner of Virginia that are served by the Southern Railway (which passes the Rogersville plant site) and the interconnecting Interstate Railroad. Other producers in nearby counties of Virginia and of eastern Kentucky would be additional prospective suppliers.

Benedict Coal Corp.
Blackwood Fuel Co.
Blue Diamond Coal Co.
Coal Processing Corp.
Dominion-Taggart Coal Co.
Fugate Construction Co.
Gibson Sales Corp.
Gladeville Coal Co.
Hawthorne C. & C. Co.
Hayes Coal Co.
Kemmerer Gem Coal Co.
King Cole Mining Corp.
Laurel Branch Coal Co.
Norton Construction Co.
Quality Coal Co.
R. & G. Coal Co.
Reeds Creek Coal Corp.
Sam Davis Coal Co.
Stallard Bros. Coal Co.
Stonega Coke & Coal Co.
Turner Bros.
Virginia Darby Coal Co.
Virginia Harlan Coal Co.
Virginia Lee Co., Inc.
Wise Coal & Coke Co.

The plant near Gallatin is expected to be supplied from the west Kentucky coal field. Following is a list of some of the many coal suppliers operating in that field. Those marked with an asterisk (*) are among the suppliers who have recently contracted to furnish coal to some of the TVA plants.

ABC Coal Corp.
The Alston Coal Co.
L. E. Babb Coal Co.
Beech Creek Coal Co.
Black Diamond Coal Mining Co.
Caney Creek Mining Co.
Charleston Sixth Vein Collieries (*)
Colonial Coal Mining Co.
Crescent Coal Co.
Duncan Coal Co.
Gant Coal Co.
Grapevine Coal Co.
Green Coal Co.
Hart & Hart Coal Co.
Homestead Coal Co.
Magnolia Mining Co. (*)
Miners Coal Co.
Norton Coal Corp.
Pond River Collieries
Nashville Coal Co. (*)
Southern Coal Co. (*)
West Kentucky Coal Co. (*)
Williams Coal Co.

The Shawnee plant can draw on both the southern Illinois and western Kentucky coal fields. The immediately preceding list provides a cross-section of western Kentucky suppliers. Following is a sample list of Illinois operators. Those marked with an asterisk (*) are among the suppliers who have recently contracted to furnish coal to some of the TVA plants.

Bell & Zoller Coal Mining Co. (*)
Blue Bird Coal Co.
Chicago, Wilmington & Franklin Coal Co. (*)
Consolidated Coal Co.
Delta Collieries Corp.
Franklin County Coal Corp.
Old Ben Coal Corp.
Peabody Coal Co.
Pyramid Coal Corp.
Sahara Coal Co.
Sterling-Midland Coal Co. (*)
The United Electric Coal Cos.
Truax-Traer Coal Co. (*)

The following ranges of heating values, expressed in B. t. u. per pound of dry coal, are expected for the coal obtained by TVA from these fields:

East Tennessee field	12,500 to 13,900
Southwest Virginia field	12,700 to 13,900
West Kentucky field	12,200 to 13,300
Southern Illinois field	12,000 to 13,500

Mr. COTTON. Is it proposed to purchase all the fuel which is necessary for these new units by the system of bids?

Mr. KAMPMEIER. We would expect that the coal would all be purchased through competitive bidding.

Mr. COTTON. The record may show that that will be the policy?

Mr. KAMPMEIER. Yes. Now, I perhaps should qualify that to some extent. A certain amount of the coal which we buy, for example, would be expected to be bought on a so-called spot basis. In other words, it is for immediate delivery in comparatively small quantities. In those cases we do not go through quite as extensive formalities of competitive bidding as we do on the long-term contracts. Basically, however, the job is done under a competitive-bidding procedure.

Mr. COTTON. I assume you are familiar with the case which we had before the committee some time ago in which we were inquiring about some coal speculation.

Mr. YATES. He was here.

Mr. COTTON. Yes. Are you reviewing your methods to make sure that careful scrutiny now is made of the proposals furnished you and the responsibility of the people who furnish them?

Mr. KAMPMEIER. We certainly expect to scrutinize carefully all proposals from the point of view of responsibility and assurance of supply.

Mr. COTTON. Will all the additional power generated by these proposed plants be used by the Atomic Energy Commission?

Mr. KAMPMEIER. Let me answer that question this way, Mr. Cotton: I believe you would consider the answer to be "Yes," but it probably needs some qualification. These units are not expected to produce any more power than the additional amount of power which the Atomic Energy Commission is calling on us to furnish. However, since they will be operated as part of the system, I would not want that to be interpreted as meaning that some power from one of these plants might not go to some other load, whereas power from some other plant might go to the Atomic Energy Commission load. The answer is that the net effect is to add to the system with these units the net amount of additional power which the Atomic Energy Commission requires.

Mr. COTTON. When you are furnishing power to the Atomic Energy Commission for a purpose which is very important to national defense and the welfare of the Nation, one of the objectives is to make sure that they have firm power, or in other words that you have plenty of power to give to them all the time. Is that right?

Mr. KAMPMEIER. That is right.

RESERVES OF POWER IN TVA

Mr. COTTON. Now, in order to do that, is it not a fact that you have to plan to generate a little more power than is necessary a large part of the time in order that you may be entirely sure of furnishing all that is necessary and that they will not lack power during certain periods? Is that true?

Mr. KAMPMEIER. Well, Mr. Cotton, these units will have some overload capacity to provide some reserve, but they are not being planned on the basis of providing a wide margin of reserve of the sort which would be necessary if these plants were being operated inde-

pendently without interconnection with our system. Rather we are relying on all the rest of the plants in the system to be able to provide stand-by for these plants, and these plants in turn for them; so it is not necessary to provide a wide margin of additional capacity for that purpose.

Mr. COTTON. One of the reasons advanced to me in some private inquiries and I think one of the reasons advanced in some of our previous hearings in this committee for furnishing power for Government plants, for plants which are essential to national defense, whether they be Atomic Energy Commission plants or whether they be in some other fields, is that by obtaining that power from a public system such as the TVA system it is more reliable than perhaps the power which could be secured through a contract with private utilities. In other words, you have a greater reserve and you are sure of your power. Am I correct in that statement?

Mr. KAMPMEIER. I believe it is true that with a given installation of capacity—in this case, 1,710,000 kilowatts—the supply to the Atomic Energy Commission is a great deal more certain as a result of that 1,710,000 kilowatts being added to and operated as a part of the TVA system.

Otherwise to provide the same assurance would require considerably more than 1,710,000 kilowatts of new capacity.

Mr. COTTON. So as a general policy, referring to your whole system and its production of power, producing as you are for necessary functions, as a matter of insurance and of safety, you must keep a few jumps ahead of the demand in order to have an adequate reserve in your system; is that not true?

Mr. KAMPMEIER. We do our very best to do that, sir. You will recall the discussion in that connection on the Shawnee units.

Mr. COTTON. Yes.

Mr. KAMPMEIER. We proposed to try to get ahead to the extent of a 7-percent margin. This committee cut that margin in half by eliminating two of the Shawnee units.

Mr. COTTON. And each time that this committee and the Congress authorize more steam plants or more capacity for producing power in the TVA, we are always keeping up that extra margin of safety, so that there always will be a certain surplus of power which surely, at given times in the year, for instance, either is wasted or must be disposed of elsewhere in private industry. Am I right?

Mr. KAMPMEIER. There will be only a very small surplus in the system, without the addition of this capacity, and the addition of this capacity will not change that surplus.

Mr. COTTON. Well, generally speaking, you keep the surplus the same. That is your answer; isn't it?

Mr. KAMPMEIER. That is right.

Mr. COTTON. But each time we add something we are adding to and maintaining a surplus so that you can continue to furnish power to the Atomic Energy Commission, to defense plants, to munitions plants, and to all the other plants, and to continue to serve the domestic needs of the area which you are serving and still have this additional margin. We are always keeping that margin in your hands. That is right; is it not? That is a matter of safety?

Mr. CLAPP. I think we would like to have that margin larger than it is, Mr. Cotton.

Mr. COTTON. How large is it, in percentage?

Mr. CLAPP. On the basis of the proposals which were before this committee this past winter, for the 1953 program we proposed additions which would give us about a 7- or 7½-percent margin by the time those units were finished. The action of the committee cut that margin in half and the subsequent action in the House cut that margin completely. The restoration of two or those units, as voted by the Senate, would give us about a 3-percent margin, on the basis of the present estimates, which is a very small margin as this system goes, and as these loads develop.

Mr. COTTON. Now, if this action of the committee and of the House had been sustained, or should be sustained, and that margin were cut completely, then you would still have just enough to furnish the ordinary needs. Could you draw on private power for your margin of safety in order to keep these plants going?

Mr. CLAPP. The neighboring systems, Mr. Cotton, do not have much of a margin to live with, either. The only way in which we could get help from the neighboring systems would be likely to be on a when, as, and if basis, and not on any firm or permanent or continuing or reliable basis.

Now, we are getting power into the area for the Atomic Energy Commission loads on an interim basis, to take care of their expanded requirements during the time we are building, and before our new plants are ready to supply them. But that power which we are getting from the neighboring utilities is interim-power supply for the Atomic Energy Commission, and is power that they cannot commit indefinitely.

Mr. COTTON. You mean that when you have a scarcity of power, that is the time there would be a scarcity of power for private utilities, too?

Mr. CLAPP. That is right. There are some differences in peak hours among different systems; but the main point, I think, which is responsive to your question, Mr. Cotton, is this: The whole Southeast area is an area of tight power supply.

Mr. COTTON. What is the practice, if you know, of the private utilities in the Southeast or in this general section, on the matter of the margin of power for safety? Do they maintain a 7-percent margin as a practice, more or less?

Mr. WESSENAUER. They try to, but they have not been able to keep it up to that level, just as we have not been able to. In the Nation as a whole the utilities try to have a gross margin of about 15 percent. If you take out of that the requirements for operating reserves, they would have a margin of the kind we talked about, of 7½ or 8 percent.

Mr. COTTON. You say they try to maintain a gross margin of 15 percent?

Mr. WESSENAUER. Yes, sir.

Mr. COTTON. What is your gross margin?

Mr. KAMPMEIER. On the basis of the presently projected program, including two of the four Shawnee units in the 1953 program, the gross margin would be about 12 percent.

Mr. COTTON. When you referred to a 7-percent margin, what kind of a margin was that? Was that a net margin?

Mr. WESSENAUER. Yes, sir.

Mr. KAMPMEIER. That is a margin for loads that may develop that have not been provided for.

Mr. COTTON. Speaking to a layman, could you tell me the difference between a gross margin and a net margin on the power reserves?

Mr. WESSENAUER. The gross margin represents the amount of the capacity needed for supplying not only additional loads, but also to take care of the fact that certain machines would be out of service for maintenance purposes, for regulation of instantaneous load variations, and technical requirements of that kind.

Mr. COTTON. A net margin is assuming that everything which requires power is in operation?

Mr. WESSENAUER. That is about right, sir. It is a margin available for meeting additional loads.

Mr. COTTON. I believe that is all I have. Thank you.

Mr. YATES. Mr. Clapp, I want to ask you one more question, if I may.

TRAVEL

Mr. CLAPP. Mr. Yates, I do not want to be discourteous, but I do hope that I could make it clear in the record, before these other gentlemen leave, that there is an additional problem of travel money in connection with this program, which I wanted to make very clear to the committee.

Mr. PHILLIPS. Why do you need 70 new cars?

Mr. CLAPP. We need 70 new cars, Mr. Phillips, in order to get our construction engineers around in the construction of these steam plants in these new locations, and in order to keep our work going on schedule.

We also, under the 1953 appropriation request as it is now pending in conference, are under a travel expense limitation which the House put in, when it reduced our estimates, which the Senate restored in part. This limitation would apply to all moneys available to the TVA, including any supplemental money that we get, and would not take into account the fact that we would be engaged in an additional program of $150 million.

Mr. PHILLIPS. That is seven new cars per plant?

Mr. KAMPMEIER. Per unit.

Mr. PHILLIPS. Per unit.

Mr. CLAPP. That will not all be used building particular steam units, Mr. Phillips. The transmission crews will have to build new lines and new substations to connect these plants up to the regular system. All that construction work requires mobility on the part of our men.

Now, the item in our appropriation request for all travel was $2,067,000. The House cut that to $1,375,000, and put it as a limitation. The Senate has restored part of that, raising it to $1,718,000. We estimate that this supplemental program alone will take $300,000 in travel expense. I should like to supply a memorandum for the record covering the details of this problem. Unless some adjustment is made either by removing the limitation or by raising the ceiling, we are not going to be able to do what we are proposing—to supply power to AEC.

(The statement is as follows:)

The TVA item in the independent offices appropriation bill, 1953, now in conference, will almost certainly include a limitation on travel expenses. Both the House and Senate bills contained limitations, $1,375,000 in the House bill, and $1,718,300 in the Senate bill. These amounts represent reductions of 33⅓ percent and 16⅔ percent, respectively, from the estimate of $2,061,585 for travel expenses included in the President's budget for 1953. Both the House and Senate bills fix at a specific figure the amount which can be spent for travel expenses out of all funds available to TVA in fiscal year 1953. Therefore, unless specific provision is made in the appropriation language covering this supplemental estimate, the appropriation of an additional amount to TVA in the supplemental bill would not increase the amount which could be spent for travel. TVA cannot meet the emergency schedules for power supply to the Atomic Energy Commission unless there is relief from the travel limitation.

The supplemental estimate anticipates a very substantial construction program at widely scattered locations. The program involves beginning construction of steam plants at two new sites and beginning work on six additional new generating units; about 350 miles of new transmission lines will be started and the construction schedules for eight other generating units are to be accelerated. This work will require substantial travel on the part of land appraisers and buyers in acquiring lands and rights-of-way; engineers and other personnel in procuring and expediting equipment; transmission line construction crews engaged in building lines; and specialized engineering personnel working out of the centralized engineering staff. Without travel of this kind, it would be impossible to carry out this new construction program. Following is a breakdown of the travel expenses involved in the supplemental program:

New transmission line connections:	
Surveying, acquisition of rights-of-way, and right-of-way clearance	$40,000
Construction of new transmission line connections	160,000
Subtotal	200,000
New generating facilities:	
Surveying, acquisition of plant sites, acquisition of access road rights-of-way, field design and engineering by central staff, inspection of equipment in manufacturing plants and its installation in the field, etc	100,000
Total	300,000

We have carefully reviewed our travel estimates for our regular program in the coming year, and $2,155,000 is the minimum amount for such travel expenses essential to permit TVA to carry out the total construction program planned for 1953. This amount would provide 90 percent of TVA's estimate for our regular 1953 program, and would include an amount of $300,000 which is our estimate of the travel expense requirements associated with the supplemental estimate.

At pages 413–416 and 426–430 of the hearings before the Senate subcommittee on our 1953 appropriation, we describe in some detail the nature of TVA's travel and the extremely serious results of having an inadequate provision for these expenses. We hope very much this committee will have an opportunity to review these statements, and give us relief from the travel limitation.

Mr. GORE. Thank you very much, gentlemen.

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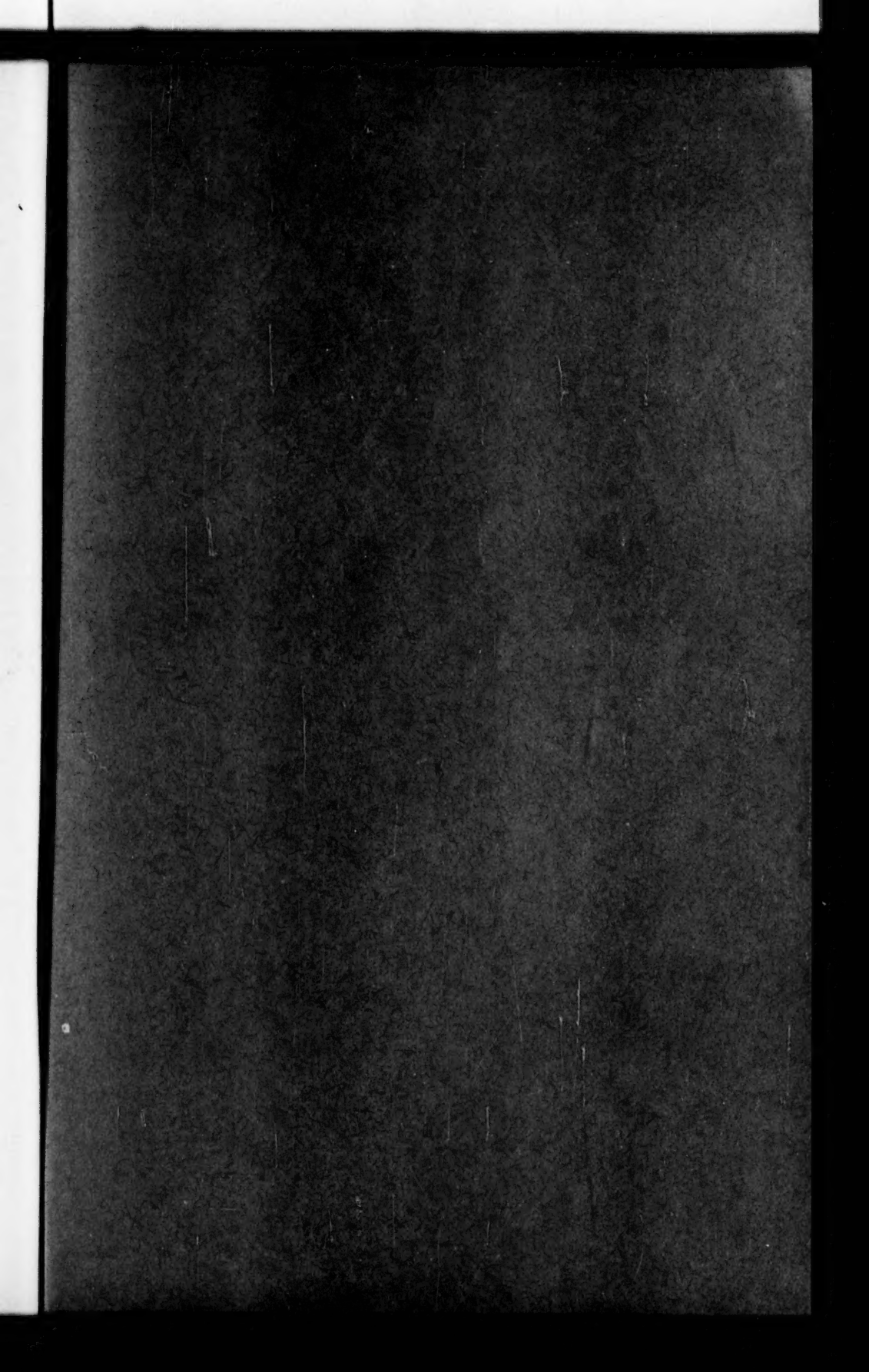
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